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The "Byrth of Mankynde."*

(ITS AUTHOR AND EDITIONS.)

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THE *Byrth of Mankynde* is perhaps the most interesting work on Midwifery in the English language. It must be admitted that an earlier manuscript work, written in English, and dealing with the same subject, has been discovered; it must also be allowed that it is in great part a translation of Rhodion's (or Rösslin's) *De Partu Hominis;* yet the *Byrth of Mankynde* retains its place of honour at the head and source of English obstetric literature, and has profoundly influenced the practice of the art of midwifery in these Islands for more than three centuries. The perusal of its pages, so beautifully printed in the old black letter, gives the reader a graphic word picture of the *vie intime* of the sixteenth century obtainable from no other work; the study of its history and of the identity of its translator or editor supplies problems of considerable difficulty, and consequently of considerable interest to the medical bibliographer; and the fact that its illustrations are believed to be among the first, if not the very first, examples of copper-plate engraving which were produced in England, gives the book an importance from the standpoint of the annals of typography which can hardly be exaggerated. Published first in the year 1540, and dedicated to "the most gracious and in all goodnesse most excellent vertuous Lady Quene Katheryne," the work lived on till 1676, new editions con-

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stantly appearing with but few alterations, until finally it had to give place to more modern books with a much more transitory existence. Seeing the light in the days when Henry VIII. was King, it survived the stormy times of Edward VI. and Queen Mary, and was a strong and healthy work in the Elizabethan age of literary and national grandeur; the Tudors went and the Stuarts came, and the book reached the summit of its life's arch; it was more than a hundred years old when the Civil War broke out and a new edition appeared in the days of the Commonwealth five years after Charles I. was executed; it was now a very old book, but it lived to see the Restoration and had vitality enough to blossom out into a new and last edition in 1676. The study of so remarkable a work cannot be without interest, and I purpose in the following pages to touch upon some of the many problems and considerations which cluster round it.

The First English Book on Midwifery.

The book's claim to be regarded as the first work in English on the subject of midwifery is the initial problem which calls for consideration.

Dr. J. H. Aveling, in his "Account of the Earliest English Work on Midwifery and the Diseases of Women" (*Obstet. Journ. Gr. Brit. and Ireland*, ii., 73, 1875), gives the following interesting information: "In the British Museum, among the Sloan Manuscripts, is one of the fifteenth century, vellum in quarto, beautifully written and illuminated, two hundred and thirty-four pages of which are devoted to "Midwifery and the Diseases of Women." From a note at the beginning we learn that it belonged to Richard Ferris, who was Master of the Barbers and Surgeons Company in 1563, and Sergeant Surgeon to Queen Elizabeth, and that at his death he bequeathed it to John Felde, who was to pay the executors for it "xxxxviii s. iiii d." Who the author of this interesting MS. was is not known. It is certain, however, that he was well acquainted with the medical writings of Rogerius of Parma, who lived some time after Albucasis, and whose book was first printed in 1490. The arrangement of the chapters is almost exactly similar, and in some instances the text is a verbatim translation from Rogerius."

Dr. Aveling gives extracts from this work relating to menstruation, and to the sixteen "unkind" ways in which the child may come forth. He reproduces also some of the drawings. The midwife's chief duty seems to have been to push the presenting part up again if it did not come down rightly, and to give various drugs. In cases

of retained placenta, "the mydwif should anoynt her hondes and with hir nayles pullen owte the secondine if she mowe."

There can be no doubt that this work by an unknown author is considerably older than the *Byrth of Mankynde*, and Dr. Aveling deserves the thanks of the profession for having unearthed the manuscript and for having given so interesting a description of it. There is, however, no evidence that it was ever printed, and it could, therefore, never have served the same purpose as did the *Byrth of Mankynde* in the education and for the guidance of the midwives of the sixteenth century. Whilst, therefore, we cannot claim for the *Byrth* priority as the earliest work on Midwifery in English, we are certainly justified in regarding it as the first printed English book on that subject.

The Authorship.

The question of the authorship of the *Byrth of Mankynde* is not so easy of solution as might be thought from the perusal of the title page of the 1545 edition or of any of the numerous editions which followed it. The book is uniformly ascribed to Thomas Raynalde, Physician: the spelling may differ, and we find Raynold, Raynald, Reynald, and Reignalds, but obviously the same person is meant; and the designation of the alleged author may also differ, for we find Phisition, Physitian, and Dr. in phisick, but obviously a medical man is meant. When, however, we come to consult the first edition of the *Byrth*, that of 1540, we discover that the authorship or rather the translatorship is claimed by one Richard Jonas, and that the work was "imprynted at London by T.R." As will be seen immediately, "T.R." were almost certainly the initials of Thomas Raynalde, a well-known printer of the sixteenth century. Herein, then, lies the problem of the authorship. It is a triple problem, and may be best stated in the form of three questions: (1) Who was Thomas Raynalde the printer? (2) Who was Thomas Raynalde the physician, and what relationship, if any, did he bear to Thomas Raynalde the printer? and (3) Who was Richard Jonas, and what relationship did he bear to the Raynaldes?

When we wish to know what is to be known with certainty about anyone who has made his mark upon his times and upon the history of the British Isles, we turn, as a matter of course, to the great storehouse of all such information, the *Dictionary of National Biography*. In this case, however, we find even that trustworthy authority giving an uncertain sound; for the article on Thomas Raynalde, to be found in vol. xlvii., contains statements which are very considerably modified

in the volume of *Errata*. Nothing could more surely prove the existence of a mystery than the striking diversity between the accounts given in the original article and in the later volume of *Errata*. The following paragraphs will serve to make this plain.

According to the *Dictionary of National Biography* (vol. xlvii., p. 347, 1896), there were two Thomas Raynaldes living at the same time, the one a physician and the other a printer in London. To the former is ascribed the translation of Rösslin's *De Partu Hominis* which bears the name "*The Byrth of Mankynde*," and was first printed in 1540. In the volume of *Errata*, however, which was published in 1904, this statement is altered, and we are told that the original writer of the translation was one Richard Jonas, and that Thomas Raynalde's work consisted in editing the second edition of the *Byrth* which appeared in 1545. Having got thus far in my investigation, it seemed to me to be essential that I should go to the sources from which W. A. Shaw, the writer of the article in the *Dictionary of National Biography* had got his information. I, therefore, consulted Ames's *Typographical Antiquities*, both in the edition to which Shaw refers (that augmented by W. Herbert) and in that considerably enlarged by Thomas Frognall Dibdin, as well as in the original work as it left Ames's hands in 1749. It was fortunate that I did so, otherwise I should have been almost as much in the dark as before. The following statements are based upon what I found in Ames's work and its later issues, as well as upon what Dr. Aveling has to tell in his *English Midwives* (p. 11, 1872). Ames's information, it must be remembered, relates to Raynalde the printer, and it is only by accident, as it were, that it contains references to Raynalde the physician.

The following is what Ames had to say about Thomas Raynalde, the printer. I quote from the *Typographical Antiquities*, London, 1749, p. 219. "Thomas Raynalde dwelt in St. Andrew's Parish, in the Wardrop, and kept shop in St. Paul's Churchyard. It may be queried whether he was not the noted physician, who set forth the woman's book or birth of mankind, so often printed." Then follow the descriptions of the 1540 and 1545 editions, which I transcribe from Ames's book. "1540. The birthe of mankind, otherwise called the woman's boke. The first translation into English, with many small copper cuts, is dedicated to Queen Catherine, wife to King Henry VIII., and the first rowling press cuts I have seen in English books. To this edition the letters T.R. only. Quarto."

"1545. The byrth of mankynde, otherwyse named the woman's booke, newly set furth, corrected and augmented, whose contentes ye

maye rede in the table of the booke, and more playnly in the prologue. By Thomas Raynold, phisition. This edition has Thomas Ray, which, if not the name of another printer, is a contraction from Raynalds. Quarto."

These statements from Ames's work seem to have been the source of most of the comments upon the *Byrth of Mankynde* and upon its supposed author during a long series of years. In a later edition of Ames's *Typographical Antiquities*, that edited and augmented by William Herbert, the same facts are stated (vol. i., p. 581, 1785); and this is the edition to which the writer of the life of Raynalde in the *Dictionary of National Biography* tells us that he had access. We thus see how it was that the idea that Raynalde the printer and Raynalde the physician were the same person arose, and we also note how the edition of 1540 came to be ascribed to Raynalde ("to this edition the letters T. R. only").

In another volume of this same edition of Ames's *Typographical Antiquities*, however, a piece of information is found which throws doubt upon the identification of Thomas Raynalde the printer with Thomas Raynalde the physician. In the third volume, published in London in 1790, and on page 1570, is the description of another book ascribed to Thomas Raynalde. It was published in 1551, and is thus described by Ames's editor (Herbert). "Dr. Thomas Raynalde, his declaration of the vertues of a lately invented oyle, called for the worthiness thereof, the Oyle Imperiall, with the manner howe the same is to be used against innumerable diseases. Printed at Venice by J. O. Griphius. Octavo." A copy of this book is in the British Museum, and is thus catalogued: "A compendious Declaration of the . . . . Vertues of a Certain lateli invented Oile, called . . . . Oile Imperial with the maner how the same is to be used, etc. J. Gryphius: Venetiis, 1551. 8°." Now the existence of this second medical book by Dr. Raynalde, its publication in Venice by a Venetian printer, and its dedication by Raynalde 'to his singular friend, Francis Mery, merchant, of the city of London,' seem almost of necessity to lead to the conclusion that Thomas Raynalde of the *Byrth of Mankynde* was not Thomas Ray or Raynalde the printer. But, further, when we come to consult a still later edition of Ames's *Typographical Antiquities*, that edited and enlarged by Thomas Frognall Dibdin and published in 1810, we get more light upon the question of the authorship of the *Byrth of Mankynde* as well as some very interesting facts regarding the 1540 edition of that work.

In Dibdin's edition of Ames's *Antiquities* (vol. iii., p. 563, 1816), the following notes appear: "Thomas Raynald. Of this ingenious

printer we are unluckily without any authentic sources of information, except that he dwelt at first in St. Andrew's Parish, in the Waredrop, and in 1549 kept a shop at the Signe of the Star in St. Paul's churchyard. It may be queried (says Ames) whether he was not the noted physician, who set forth the woman's book, or birth of mankind, so often printed? But there seems to be very slight grounds for this quaere, as it is nowhere apparent, but upon the face of a colophon, that Raynald the printer was a physician." Dibdin then goes on to describe very fully the 1540 edition of the *Byrth of Mankynde*, from the examination of a perfect copy in "the richly stored library of my friend Mr. Herbert"; and I here give his description, which, in view of the extreme rarity of this edition, is exceedingly valuable. "*The Byrth of Mankynde.* 1540. Quarto. 'The byrth of mankynde newly translated out of Laten into Englysshe. In the which is entreated of all suche thynges the which chaunce to women in theyr labor, and all suche infyrmitees whiche happen unto the Infantes after they be delyuered. And also at the latter ende or in the thyrde or last boke is entreated of the conception of mankynde, and howe manye wayes it may be letted or furtheryd, with diuers other fruytefull thynges, as doth appere in the table before the booke. *Cum priv. regal. ad impr. sol.*' On the back of the title-page is a sort of religious 'admonicion to the reader,' which is followed by a dedication of six pages 'Unto the most gracious and in all goodnesse most excellent vertuous Lady Quene Katheryne wyfe and most derely belouyd spouse unto the most myghty sapient Christen prynce Kynge henry the VIII. *Richard Ionas* wyssheth perpetuall ioye and felicyte.'" Dibdin concludes his description by stating that "at the end, we read this colophon: 'Imprynted at London by T. R. Anno Domini MCCCCCXL.'"

Here, then, we have an indication of the authorship of the earliest known edition of the *Byrth of Mankynde*: the author, or rather the translator of Rösslin's *De Partu Hominis* (for a translation is what the 1540 edition really was), was a person called Richard Jonas; and the T.R. of the colophon referred to Tho. Ray the printer. But when we come now to ask who Richard Jonas was, we are almost brought to a stop. If we turn, however, to the Prologue which precedes the first book of the later editions of the *Byrth*, we find a reference which must surely apply to Jonas. I quote from the 1552 edition (but I believe the 1545 is identical). "Wherfore now to come to our purpose, ye shal understand that about a thre or foure yeres past, a certayne studious and diligent clarke, at the request and desyre of diuers honest and sad matrones, beynge of hys acquayntaunce, dyd

translate out of Latin into English a great part of thys boke, entiteling it according to the Latine inscription (de partu hominis, that is to saye: of the byrth of mankynd) which we nowe do name (The womans boke) (for so moch as the most parte or well neare all therein entreated of, doth concerne and touche onely women). In whych hys translation he varied, or declyned nothing at al from the steppes of his Latine auctor. Obseruynge more fydelytye in translatynge, then choyse or dyscretion at that tyme in admyttynge and alowyng many thynges in the same Boke, greately neadyng admonityon and wary aduyse or counsell to the readers, whyche otherwyse myghte sometymes use that for a helpe, thee whyche shoulde turne to a hynderaunce, wherefore I reuoluyng and earnestly reuysinge from top to too ye sayd boke, and here withal considering the manifold utilite and profyte, whych thereby moughts ensue to all women (as touching that purpose) yf it were more narowly loked ouer, and wyth a strayghter iudgement more exactely euery thing therein pondred and tryed, thoughte my labour and paynes shuld not be euyl employed, ne unthankefully accepted and receaued of al honest, discrete and sage wemen. If I after good and dylygent perusing thereof dyd correcte and amende soche fautes in it, as semed worthy of the same, and to aduyse the readers what thynges were good or intollerable to be used, which were daungerous, and which were utterly to be eschued. The which thinge I haue not only so done, but ouer this haue ther unto adioyned and annexed dyuers more experimented and more familier medicines."

In these lines of the prologue of the 1545 and subsequent editions we are told all that we know of Richard Jonas, for I do not think it can be doubted the "studious and diligent clarke" referred to was Richard Jonas. This, at any rate is the view of the matter taken by the authorities at the British Museum and by Dr. Aveling. In the *British Museum Catalogue* of printed books, under the name *Jonas* (Richard) is placed *The Byrth of Mankynde*, 1540; and in another volume of the same catalogue the same book appears under Roesslin, showing that the work was recognized as a translation of the latter author's *De Partu Hominis*, and that the translation was ascribed to Richard Jonas. Unfortunately the British Museum copy is imperfect, for it lacks the plates which are described in the text. To this edition I shall again refer, in the meantime I simply repeat that it seems to be undoubted that *it was the first edition of the Byrth of Mankynde, that it consisted of a translation of Rhodion's or Rösslin's "De Partu Hominis," that the translator was Richard Jonas, and that it differed in several respects from the later editions.*

Although nothing more is known with certainty about Richard Jonas, I may touch upon some circumstances which may serve to throw a little light upon his personality. By the end of 1540 Henry VIII. had led five wives to the altar. In 1531 Catharine of Aragon was put away, although the marriage was not annulled as void until May 1533, four months after the King had privately married Anne Boleyn. In 1536 Anne was executed, and on the day after the execution Henry married Jane Seymour; she died in childbirth. In 1540 Henry was for a few months the husband of Anne of Cleves. The Lutheran princess was soon divorced and Katherine Howard put in her place; but she was beheaded in 1542 (February), and another Katherine (Parr) became Henry's wife in 1543. The writer of the life of Thomas Raynalde in the *Dictionary of National Biography* states that it was to Queen Catherine Parr that the *Byrth of Mankynde* was dedicated; but, since the work was published in 1540, it must have been Queen Katherine Howard who was indicated in the dedication. It is impossible now to determine the circumstances of the publication of this edition; but some guesses may be hazarded. In the first place, it is significant, I think, that Queen Jane Seymour should have died in childbirth, for this death would draw attention very sharply to the perils of parturition, and would lead midwives and surgeons to inquire whether any more trustworthy guides to practice existed in the English or in foreign languages than were commonly known or used. Queen Anne (of Cleves) was a sister-in-law of the Elector Frederick of Saxony, and had other family ties with the Lutheran Princes of Germany. Justus Jonas, of Wittenberg, was a distinguished disciple of Luther, and it is just possible that to him was related the London Richard Jonas (who may even have come over in the train of Queen Anne) the translator of the *Byrth of Mankynde*. Rhodion's book was well known in Germany at this time. Further, it may have been intended that the work should be dedicated to Queen Anne; her early dismissal, and her succession by Queen Katherine Howard may account for its dedication to the latter.

I am now in a position to proceed to the discussion of who T.R. of the 1540 edition was, and of the relationship he bore to Tho. Ray and to Thomas Raynalde the printer, and Thomas Raynalde the physician. In the first place I think there can be no doubt that T.R. of the 1540 edition (Jonas's translation) was the printer whose name appears as Tho. Ray in the colophons of the 1545 and 1552 editions. In a later work printed by Thomas Raynalde his name is indicated by the initials T.R., I refer to the *Processionale* published in 1555; and it seems too artificial a suggestion to suppose that two printers with

names having the same initials should have printed the first and second editions of the *Byrth of Mankynde*. But it may be said that these reasons do not disprove the possibility that Tho. Ray and Thomas Raynalde the printer were different people. Neither they do; but there is no evidence whatever that any printer of the name of Tho. Ray existed; if there had been any such evidence either Ames himself or one of his two distinguished editors would almost with certainty have found it out. It may be concluded, therefore, *that T.R. of the 1540 edition and Tho. Ray of the 1545 and 1552 editions were one and the same person, and that he was Thomas Raynalde the printer in St. Paul's Churchyard, London.*

Ames's query whether Thomas Raynalde the printer was not the noted physician who set forth the *Woman's Book* or the *Byrth of Mankynde* now calls for consideration. Raynalde, the printer, sent out from his press in London several works between the years 1540 and 1555; among these were the two editions of the *Byrth of Mankynde* (1540 and 1545), a *Treatise against the Masse* (1548), a *Plaister for a Galled Horse* (1548), the *Boke of Barthra Priest* (1549), *Certaine Psalmes* (by Sir Thomas Wyatt, 1549), and the folio *Byble* (1549). No works seem to have come from his press after 1555, when the *Processionale* made its appearance. He flourished, therefore, between the years 1540 and 1555. As it happens these were also the years during which we have any information regarding Thomas Raynalde, the physician. His name appears upon the title page of the 1545 and 1552 editions of the *Byrth of Mankynde* as well as upon a second book, published at Venice in 1551 and already referred to (*vide antea*). From internal evidence in these two works we learn further that he was at Venice (in 1551), in Padua, and in Paris. His work on *Oyle Imperiall*, is described in Ames's *Typographical Antiquities* (Herbert's edition, iii., p. 1570, 1790) among those books "printed abroad by Englishmen, and other printers for them," and the epistle dedicatory is dated from Venice (March 1, 1551) to the author's 'singular friend, Francis Mery, merchant, of the city of London,' and in it there is an acknowledgement of the author's indebtedness to this merchant who had purchased from him a large quantity of the oil. A copy of this work is in the British Museum, catalogued under Thomas Raynalde's name; the printer's name is J. Gryphius. In the 1560 edition of the *Byrth of Mankynde* appears for the first time the ninth figure in the Anatomical plates, that showing the uterus cut open; to this is annexed (on folio li.) the following description: "And the nynth figure sheweth the Matrix cut forth of the body, being of that bygnesse as it was sene taken

foorth of a woman at the laste Anothomye, which I dyd se[1] at the uniuersitie of Padua in Italy." In the 1552 edition there is a reference to medical practice, which seems to throw some light upon the doings of the writer or editor; it is as follows:—"Yet agayne to confyrme myne opinion, that the Termes do onely issue oute of the vaute of the matrix: ye shall understande, that at sundry tymes I haue had two dyuers wemen in cure thone in London and thother in Paris: of which thone by a fal from her horse, the other by a violent thrust and squat on the buttockes upon the harde stones in the strete, beynge both neare the tyme of theyr purgation, chaunced also both of them into one maner of disease (that is to say) immediately here upon, theyr Termes dyd issue." The writer continues his description of these two cases, and draws some deductions from them regarding menstruation (*vide* folio xliiii. of this edition).

These facts are, I think, sufficient to show that it is very improbable that Thomas Raynalde the printer, and Thomas Raynalde the physician, were one and the same person; for, if they were, then we must imagine the printer travelling widely on the Continent (Venice, Padua, Paris), having a book printed for him at Venice by another printer called Gryphius, while all the time books were issuing from his own press in St. Paul's Churchyard in London. To my mind it is much more likely that they were individuals bearing the same name. It is possible that they were cousins or uncle and nephew. At any rate we can easily imagine the printer asking the physician to revise and add to Jonas's work, the first book which had come from his press and one which had evidently sold well since a second issue was needed at the end of five years; we can also easily understand that the physician would be led to incorporate his personal experience in the second edition and add new chapters to the work in order to make it more widely useful. To Thomas Raynalde's pen must, I think, be ascribed the greater part of the Prologue to the Women Readers and most of the first book of the 1545 and subsequent editions; the remaining parts are translations from Rösslin's *De Partu Hominis* made doubtless by the "studious and diligent clarke," whom we must regard as Richard Jonas. Of course it is just possible that Thomas Raynalde may have been the maker of the translation of 1540, and that he took the *nom de plume* of Richard Jonas to save himself from the possible obloquy which might attach itself to the physician who concerned himself (in those times) with

[1] This sentence is suspiciously similar to that in which Vesalius describes the same figure in his work, published in 1543.

the subject of midwifery. There are other possible solutions of the problem of authorship; but it seems to me to be *probable that the 1540 edition was the work of Richard Jonas and was a simple translation of Rösslin's "De Partu Hominis"* (most likely the 1538 edition published at Paris "apud Joannem Foucher"), *that the second edition (1545) was revised and considerably added to by Dr. Thomas Raynalde, and that he also added to and edited the third and probably the fourth editions* (1552 *and* 1560). I think, therefore, it is permissible to call the work Raynalde's *Byrth of Mankynde* rather than Jonas's Byrth of Mankynde or Jonas's English Translation of Rösslin's *De Partu Hominis*, on account of the Prologue and the new material in Book I., and for the reason that for more than three hundred years it has been so named. To the first edition, however, it is more correct to give the name Jonas's Translation of Rösslin's *De Partu Hominis*, and to catalogue it either under Jonas or Rösslin. Further consideration will be given to this subject when the peculiarities of the various editions have been described.

I may here conveniently summarize the conclusions at which I have arrived regarding the authorship of the *Byrth of Mankynde*. (1) The 1540 edition of the book was a translation of Rösslin's or Rhodion's *De Partu Hominis* made by Richard Jonas, the "studious and diligent clarke" referred to by the editor of the 1545 edition. (2) It was printed by T.R.; and these were the initials of Tho. Ray or Thomas Raynalde, the printer, who had a shop in St. Paul's Churchyard, and from whose press various works issued between the years 1540 and 1555. (3) The second edition, which appeared in 1545, was revised "from top to toe" by Thomas Raynalde, the physician, and was considerably added to by him, the additions consisting of the prologue and most of Book I., as well as of short paragraphs in the other books. (4) Thomas Raynalde, the physician, seems to have practised in London and Paris and to have visited Venice and Padua; he may have been a relative of his namesake the printer. (5) He may have edited the third edition (1552) and the fourth (1560); but subsequent editions were almost identical, and were printed by different printers (Richard Jugge, R. Watkins, T. Adams), and probably Thomas Raynalde, the physician had no hand in them.

The Editions of the "Byrth of Mankynde."

(a) *The 1540 Edition.*

I have already referred to (p. 301) and quoted from Dibdin's description of the 1540 edition, given in his edition of Ames's *Typographical Antiquities* (vol. iii., p. 563, 1816). His description

is of great value, for it was made from a perfect copy in Herbert's library. There is a copy at present in the British Museum; but it is imperfect, consisting of 84 numbered leaves instead of 86 (in Herbert's copy), and it lacks the plates. The title-page differs widely in its wording from that of later editions: the book is named "The byrth of mankynde, newly translated out of Laten into Englysshe," etc., and the alternative title "the womans booke," does not appear; there is no author's or translator's name on it; and there is no allusion to the prologue but only to "the table before the booke." The "sort of religious admonicion to the reader" which appears upon the back of the title page is evidently peculiar to this edition, and is probably replaced by what I have termed the Aristarchus preface of all later editions. The dedication (of six pages) to "the most gracious and in all goodnesse most excellent vertuous Lady Quene Katheryne" is also peculiar to this edition, and has been referred to already.

In addition to what has been stated already about the 1540 edition of the *Byrth of Mankynde* I may give the following particulars (Ames's *Typographical Antiquities*, vol. iii., p. 563, 1816). "The book contains 86 numbered leaves, and is printed on stout paper, in a fine large Gothic type. Between folio xxiv. and v., there are four copper-plate engravings containing seventeen illustrations of children in utero. These are very curious, as being among the rarest early specimens of this kind of engraving [the first ever seen by Ames] published in this country." These plates call for further consideration. I quote agan from Ames's *Typographical Antiquities*, as edited by Dibdin (vol. i., pp. 24, 25, 26, 1810). "While the foreign presses were putting forth the most beautiful books, and the gravers of Albert Dürer and Aldegraver were exhibiting equally beautiful specimens in the sister art, we were, I fear, generally obliged to content ourselves with the importation of worn and battered blocks, or with foreign artists discarded from want of capacity. This may account for the tardy appearance of the first Copper-Plate impressions in this country, executed by means of a roller—which are supposed to be the frontispiece to Galenus De Temperamentis printed at Cambridge in 1521, ... and the cuts in Raynalde's *Birth of Mankind*, 1540. . . . . Although Strutt says: 'it is by no means certain that these (latter) plates were engraved in England or the work of English artists,' yet, when the rudeness of the figures and the absence of any similar style of engraving preceding the date of publication of both works are considered, we may be disposed to conclude that they are the earliest known specimens of impressions from Copper Plates in this country." It is a misfortune that the copy of the 1540 edition

in the British Museum lacks these plates, as we are unable to judge of their characters. The reproduction of one of them given in Ames' work (vol. i., p. 25, 1810) unfortunately is "printed from a wooden block for the convenience of press work," and probably gives little idea of the original, although the editor states that "it will be found to exhibit a very faithful character of the original."

I have seen the so-called 1540 edition of Raynalde's *Byrth of Mankynde*, which is in the Library of the Obstetrical Society of London. Even a cursory examination of the work makes it very doubtful whether it is what is claimed for it in the Catalogue, and a more careful inspection makes it practically certain that it is really the 1634 edition. The title page is in manuscript, and so forms no indication of the real age of the work; but the type is only partly black letter, the marginalia are in ordinary type, the Aristarchus preface is in English not in Latin, the pagination is by pages not by folios, and the spelling is that of the seventeenth and not of the sixteenth century. There are several other features in which the copy resembles the later rather than the earlier editions, and I do not doubt but that it is really the 1634 edition. The absence of the title-page and of the last two or three pages at the end, and their replacement by transcriptions make it impossible to be quite sure (of course the *transcriptions* may have been made from other editions). It is certainly not the 1626 edition.

There is another copy of the *Byrth of Mankynde* which carries the date 1540 on the title page; this is in the Library of the University of Glasgow. The date, however, is written in, there being no printed intimation of it. This copy is, therefore, probably the undated edition of 1564 (q.v.). It came from the Collection of James Hotson, of Airdrie, and was presented to the University by Dr. Thomas Reid, the oculist.

This edition of 1540, it will be remembered, is not in any sense a Raynalde one except in so far that it was printed by Thomas Raynalde, the printer. It is a translation into English of Rösslin's *De Partu Hominis*, made by Richard Jonas; and it ought to be catalogued either as Jonas's *Byrth of Mankynde* or as Rösslin's *De Partu Hominis* in English.

I have carefully collated the contents of this first edition of the Byrth with those of later editions. The 1540 edition has its contents divided into three instead of four books; it lacks the Prologue to the Women Readers which appears in later editions; but it has the dedication to Quene Katheryne; it lacks also the Plates of Anatomical

Figures which later editions have, although it possesses the Birth Figures (indeed, all the editions have the latter). The collation of the chapters is as follows.[1]

1540 Edition.	1552 Edition.
First Book.	First Book.
Chapter I.	Chapter XIV.
	Second Book.
Chapter II.	Chapter I.
Chapter III.	Chapter II.
Chapter IIII.	Chapter III.
Chapter V.	Chapter V. (error).
Chapter VI.	Chapter V.
Chapter VII.	Chapter VI.
Chapter VIII.	Chapter VII.
Chapter IX.	Chapter IX. (error).
	Chapter X.
	Third Book.
Chapter X.	Chapter I.
	Chapter II.
Second Book (not in chapters)	Chapter III.
Third Book	Fourth Book.
Chapter I.	Chapter I.
Chapter II.	Chapter II.
Chapter III.	Chapter III.
Chapter IIII.	Chapter IIII.
Chapter V.	Chapter V.

Briefly stated, the first and second books of the 1540 edition correspond to the second and third books of the later editions; and the third book of the former edition to the fourth book of the later editions. The first chapter of the first book of the 1540 edition, however, corresponds to the fourteenth of the first book of the later editions; and the tenth chapter of the second book of the later editions has no corresponding chapter in the 1540 edition. This collation of the chapters is of value, further, because it explains some of the irregularities in the numbering of the chapters in the 1552 and 1560 editions; the printer has evidently forgotten sometimes that the two series of chapters did not exactly coincide, and has attempted

[1] I have used the 1552 edition for purposes of collation, but it very closely resembles the 1545.

occasionally to make them do so. The greater part, then, of the first book of the 1545 and subsequent editions is not represented in the 1540 one, and is, along with the prologue, to be ascribed to Raynalde.

The collation of the 1540 edition with Rösslin's *De Partu Hominis* (the Paris edition of 1538) shows that the first and second books of the former correspond to the twelve chapters into which the latter is divided; the third book of the former is not represented in Rösslin's work. The Byrth Fygures also correspond in the two works, but are not arranged in the same order.

(b) *The 1545 Edition.*

The Royal College of Physicians of London has a fine copy of the 1545 edition of the *Byrth of Mankynde;* through the courtesy of the College I have been able to examine this book. The title page has a woodcut border, but the degree of ornamentation and illumination is small as compared with what some of the later editions show. The date (Anno. M.D. XLV.) is rendered slightly uncertain, for the Library Stamp of the College covers it and makes it appear as if there were another figure between the D and the X; but I think it is correctly given in the Catalogue as 1545, and that the figure is only a full stop and a blur. The date is not repeated at the end of the work, so that it cannot thus be checked. The setting of the title is as follows:—

The byrth of
mankynde, otherwyse named
the womans booke, Newly
set furth, corrected and
augmented, whose co-
tentes ye maye rede
in the table of the
booke and most
playnly in the
prologue

By Thomas Raynold
Phisition

Anno M. D. XLV

At the end of the work is the word "Finis," followed by "Imprynted at London by Tho. Ray." "Imprynted" is preceded by the paragraph mark (¶), which is very commonly employed in this edition although it does not appear upon the title page. The book is printed entirely in black letter including the marginalia; and there are

woodcut capitals. There are 148 leaves or folia, but the numbering of them is irregular and seems to be erroneous[1]; there are four preliminary leaves, and the prologue occupies 18 leaves; so that, in all, there are 170 leaves or folia (about 340 pages of a modern book). Inserted at folio 46 are two plates representing dissections of the anterior abdominal wall; at folio 63 are two leaves, printed on both sides, (*i.e.* four plates) of copper plates, consisting of the "Birthe Figures," viz. "the Woman's Stoule," and 17 figures showing the presentations of the child in utero. The anatomical plates are from Vesalius, the "Birthe Figures" from Rösslin. On folio 108, at the end of the second book, is the following interesting passage which I here quote. "And as touching the aboue Trociskes and emplasters described here in this place, ye shall fynde them alwayes readye made at the signe of the thre Dooues in Boucklars bery[2] in London: the name of the good man of ye house is wyllam Normewyll. In whose shoppe I haue caused the sayde thinges faithfully to be made, for because that I am certayne that he is one of the moostt fydell and faithfullest Apothecaries in London: And suche as wyll not spare for any cost to acquire and obtayne of the best and moost singular symples and droges in there kynde, that may be gotten for monye." This passage throws an interesting sidelight upon the life of the time, and on the relations of medical men and apothecaries, as well as upon the pharmacy of the middle of the Sixteenth century. It may also be compared with the corresponding passages in some of the other editions, to which reference will be made under these editions.

It is to be noted that the preface, commencing "Quamvis possit Aristarchus," is in Latin in this edition as it is also in that of 1552 (q.v.).

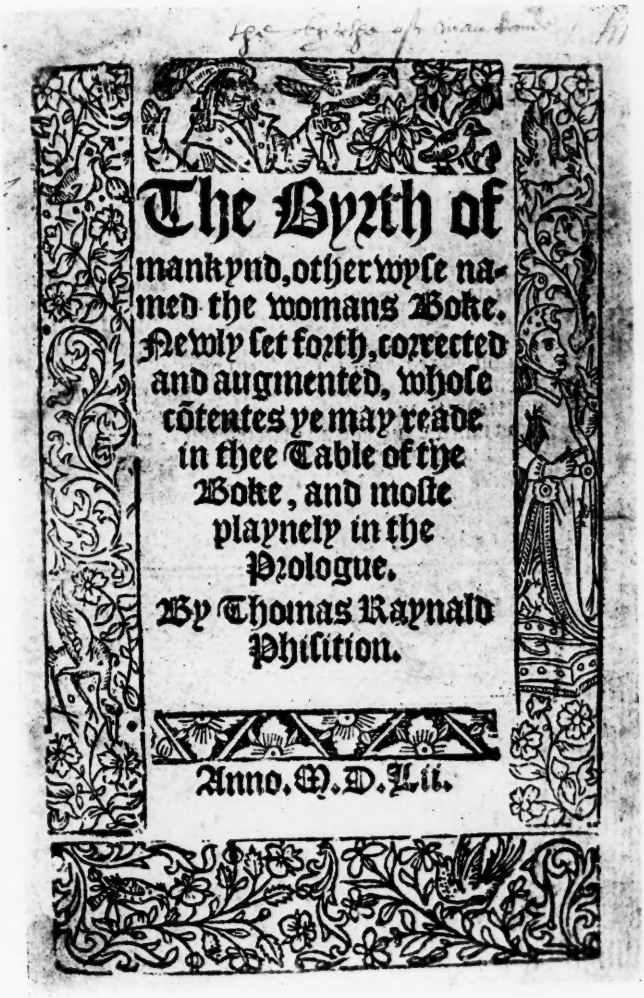
(c) *The 1552 Edition.*

The edition of 1552 is a small quarto of 149 folia or double pages, not including twenty folia devoted to the table of contents and prologue. The title page, reduced very slightly in size, is reproduced in Fig. 1. It is noteworthy that in the ornamental border on the right side is the figure of a midwife (or of a pregnant woman) with the forefinger of each hand extended as if for a vaginal examination. The date (MDLii) is clearly set forth, and the name of the author is

[1] After signature J, follows Hh8; and then Hhh6; it contains Y10 in eights; A, only 4.

[2] Bucklersbury was in Cheapside, and was noted for its druggists' and grocers' shops. There is an allusion to it in Shakespeare's *Merry Wives of Windsor* (Act. iii., sc. iii., 19): "Many of these lisping hawthornbuds, that come like women in men's apparel, and smell like Bucklersbury in simple time."

Fig. I.


The Byrth of mankynd, otherwyse named the womans Boke. Newly set forth, corrected and augmented, whose cõtentes ye may reade in thee Table of the Boke, and moste playnely in the Prologue.

By Thomas Raynald Phisition.

Anno. M. D. Lii.

Title Page of the 1552 Edition.

Fig. II.

Quamuis possit Aristarchus quispiam cu-
ram nonnullam, diligentiamq; in hoc o-
pere desiderare: nullus tamē tam iniquus
erit, qui inficias iuerit opere p;ectum hic
aliquod factum esse: quum & multo locu-
pletius auctius, emendatiusq; quam bel
Latine, bel Anglice, p;ius habebatur', iam p;odeat. Et
ausi plurimis, hisq; necessariis curis familiaribus di-
stracti (Interimdum creudebatur) fuissemus, altius pla
ne, factus foret hic liber. Haud ignari, non pauca hic
congeri parum admodum necessaria, que omitti potu-
issent ablq; ullo lectoris dispendio. Rursum alia desi-
derari que adscita, non leuiter p;ofuissent ad p;esens
negotium, decreuimus igitur breui opusculum hoc sub
incudem reuocare, & exactioze lima, omnia (p;o viribus
nostris) nitidius expolire: Interim p;ecantes ut
non minoze successu ab obstetricibus, reliquis
& matronis omnibus amplectatur, quam
ex affectu scriptum.

THE

Latin Preface to the 1552 Edition.

given as Thomas Raynald, Phisition. On the reverse side of the title page is the preface in Latin. In the editions of 1560, 1564 (?), 1565, 1598, 1626, 1634, 1654, and I presume all the others, the preface appears in English. The Latin is reproduced in Fig. 2, and I give here the translation as it appears in the edition of 1560: "Albeit some Aristarchus[1] may perhappes finde some lacke of faithfulnesse and diligence in this work: yet there is none so froward to deny but that there is some fruit and profyte to bee founde therein, seyng that it commeth nowe abrode much more enlarged and encreased, and more diligently corrected then it was before, eyther in the Latine or in the Englyshe. And where before in the other printes, there lacked matter necessary to the openyng and declaration of the figures pertaynyng to the inner partes: it is nowe so plainely set foorth, that the simplest Mydwyfe which can reade, maye both understand for her better instruction, and also other women that haue nede of her help, the more commoditie. Wherefore my desyre is, that it maye be receaued and practysed of Mydwyues and all other Matrones, with no lesse successe, then it is with good wyll and desyre wrytten to profite and to do good to other."

Then follow the table of contents and "A Prologe to the women Readers." Frequently throughout the table of contents and the prologue there occurs the old sign for paragraph (something like a reversed D, thus ¶); it is seen also throughout the whole book, but it does not appear on the title page as it does on that of the editions of 1560 (*vide* Fig. 3), and 1564 (?).

The first book extends from folio 1 to folio 56 (*i.e.* 112 pages); it consists of fifteen chapters and of "the declaration by letters of the fygures followyng." Eleven figures in all are described. From the description given, the first and second figures represented dissections of a man's body showing the peritoneum and the parts below it. At the end of the descriptive notes is the following remark: "Here ye shal be aduertysed that although these two fyrst fygures be made principally for ye man, yet may they serue as wel to expresse the woman; for the man and woman differ in nothyng but in the pryuie partes." In the 1560 edition they have therefore disappeared (reducing the number of figures to nine); further, the declaration in that edition reads as follows: "The declaration by letters of the fygures folowing, wherein be set forth to the eye, euery parte in woman mentioned in thys boke before: Which in the former Printinges hath ben corrupted, but nowe truely set forth." The

[1] Aristarchus of Samothrace was a great critic; so the word came to be employed with the meaning of a severely critical person.

eighth, ninth, tenth and eleventh figures of the 1552 edition are the fifth, sixth, seventh, and eighth of the 1560 and subsequent editions. The ninth figure of the 1560 edition ("the matrix . . . . taken foorth of a woman at the laste Anothomye, which I dyd se at the vniuersitie of Padua in Italy") does not appear in the present (1552) edition nor in the 1545; perhaps it took the place of the fifth and seventh figures of the 1552 edition. All these anatomical plates are to be found in Vesalius' (*De Humani Corporis Fabrica*, 1543).

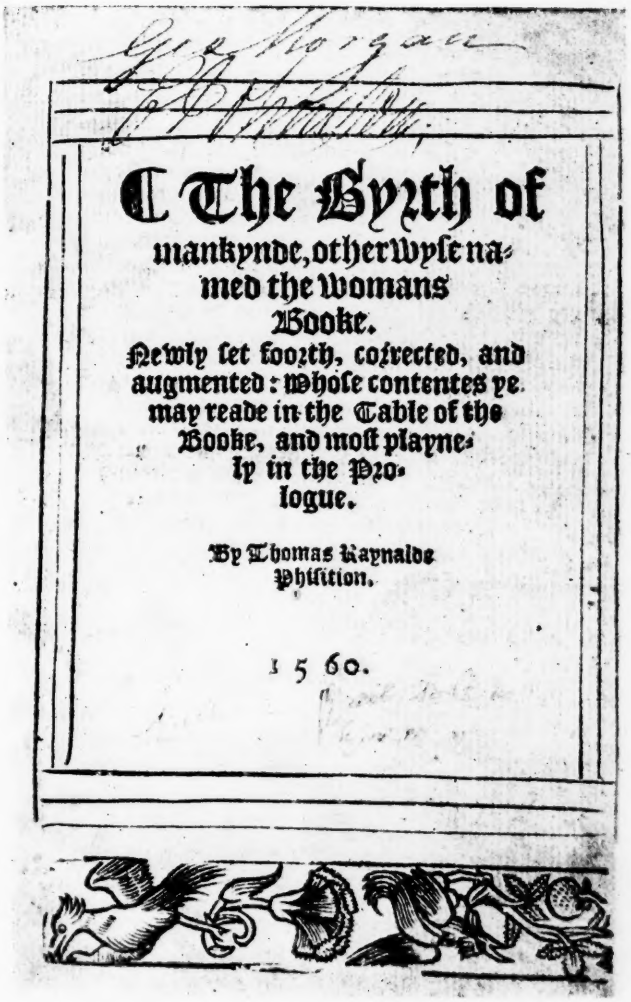
The second book extends from folio 57 to folio 112; it consists of nine chapters, numbered I., II., III., V., V., VI., VII., IX., and X. In the second part of the third chapter is the description of most of the Birth Figures, viz., the first to the sixteenth (folio 71 to 74). The seventeenth and last of the Birth Figures is referred to on folio 60; it exhibits a two-headed monster. At the end of the second book is the interesting paragraph about the Trochiskes, which reads as follows: "And as touching the aboue Trochiskes and emplasters described here in this place, ye shal fynd them alwayes ready made at the signe of the thre Doues in Boucklers bery in London: the name of the good man of that house is Wylliam Normeuyl. In whose shoppe I haue caused the sayd thinges faithfully to be made, for because that I am certayne that he is one of the moost fydell and faythfullest Apothecaries in London. And soch as wyl not spare for any coste to acquyre and obtayne of the best, and moost singular simples and droges in theyr kynde, that maye be gotten for moneye."

The third book consists of three chapters and extends from folio 113 to folio 136. It deals largely with children's diseases. The fourth book has six chapters, extends from folio 137 to folio 149, and deals with sterility and certain cosmetics or "bellyfying receptes."

The only copy of the 1552 edition which I have had an opportunity of examining is that in the Library of the Royal College of Physicians of Edinburgh. It lacks the illustrations, but is otherwise perfect; and it was given to the College in 1846 by Dr. W. Beilby. Here and there throughout the volume are written comments or remarks, and some of these are interesting. They are all very old, as the caligraphy proves, *vide* the written title at the top of the title page. On the margin of folio 36 is written "The birth of man by Tho: Reignalds Dr in phisick," and on folio 18 is a somewhat similar inscription. Again on folio 86 is written "Joshua Jones his book 1688," and on the opposite page is "Richard Jones."[1] These were

[1] The occurrence of this name (Richard Jones) suggests the speculation whether the translator of the first edition may not have been a Richard Jones and not a Richard Jonas, and perhaps an ancestor of this Richard!

Fig. III.



¶ The Byrth of mankynde, otherwyse named the Womans Booke.

Newly set foorth, corrected, and augmented: whose contentes ye may reade in the Table of the Booke, and most playnely in the Prologue.

By Thomas Raynalde Phisition.

1560.

Title Page of the 1560 Edition.

doubtless former owners of this copy of Raynalde. On folio 60 occurs the marginal MS. note "The birth of man easier yⁿ ye birth of wom." There are some other notes mostly of the nature of comments on the text.

At the end of the work is the word FINIS in Gothic capitals followed by "Imprinted at London by Tho. Ray." The colophon, however, is not supplied with any date. I have already discussed the relationship of Tho. Ray to Thomas Raynalde.

(d) *The 1560 Edition.*

The edition of 1560 has a comparatively plain title page, that of my copy is reproduced in Fig. 3. It is noteworthy that even the title in this edition is prefixed by the old paragraph sign (¶). There is a good deal of carelessness visible in the headings of the leaves; thus: "the first booke" is put for "the seconde booke" on leaves 58, 59, 60, 61, 74, 75, 76, 77 and 92, whilst "the seconde booke" appears instead of "the thyrde booke" on leaves 102 and 108. The pagination, or, rather, foliation, does not include the "Prologue to the women readers" nor the table of contents; the Prologue covers nineteen as against thirty-three pages in the 1552 edition; the first book covers fifty-one leaves (102 pages) as against fifty-six leaves (112 pages) in the 1552 edition; in all, the four books occupy 131 leaves (262 pages) as against 149 (299 pages) in the 1552 edition. My copy has two former owners' names on the title page, viz., Geo. Morgan and E. Johnston; it lacks the plates of the anatomical relations of the genital organs, but has the "Birth Fygures" including the "Womans Stoole" and the seventeen figures of the presentations; the latter, consisting of four plates, are placed immediately after the table of contents, and not in the third chapter of the second book where they are described in the text; and it is incomplete at the end, some leaves of the third and the whole of the fourth book being absent. The seventeenth of the birth figures, that of the double monster "such as of late was sene in to the dominion of Werdenberg" is referred to in the second chapter of the second book (leaf 54). There are no written notes or comments in my copy except the statement on the margin of the first leaf of the second book: "Wrote by Thos. Raynalde M.D. A.Domini ——1560" (*cf.* the account of the 1552 edition, the copy of the Royal College of Physicians of Edinburgh). The ninth figure of the anatomical plates makes its first appearance in this edition. It "sheweth the Matrix cut forth of the body . . . of a woman at the laste Anothomye, which I dyd se at the uniuersitie of Padua in Italy." It, also, is taken from Vesalius (*De Humani Corporis Fabrica*, 27th

Plate in 5th book, 1543). The description suggests that Raynalde himself saw the post mortem, but a comparison of his words with those of Vesalius throws a doubt upon this point.

There is a perfect copy of the 1560 edition in the University of Aberdeen. It formed part of the Bute gift to that University. No printer's name occurs on this edition, either on the title page or in the colophon; indeed, there is simply the word "Finis" on the last page. All the illustrations are present in the Aberdeen copy; the nine anatomical figures (from Vesalius) appear at leaves 44, 46, 49 and 51, and two of the plates are folded; the Birth Fygures and the Woman's Stoole are inserted opposite leaf 63. On the flyleaf opposite the title page is written "Rebekah Cox her Book," and below it is "Edward Challis, His Book, paid 1d at ye second hand 27th March 1669."

The illustrations of the 1560 edition (which are also those of all the later issues) are reproduced in Figs. 4 to 11.

(*e*) *The 1565 Edition.*

The edition of 1565 was a fine one, and a good copy of it is in the Library of the University of Edinburgh. It is a small quarto of 131 folia or double pages, not including 14 folia devoted to the title page, table of contents and prologue. The title page is ornate: the right border contains the figure of a woman and the left that of a man; there is a lion at each side of the base; at the top is a scroll with a monogram which seems to contain the letters R, E, G, and G. The arrangement and spelling of the words of the title are as follows:—

The birth of
mankynde, other-
wyse named the
womans booke.

Newely set foorth, corrected and
augmented. Whose con-
tentes ye may reade in
the Table of the
booke, and
most
playnely in the
prologue
By Thomas Raynalde
Phisition

Fig. IV.

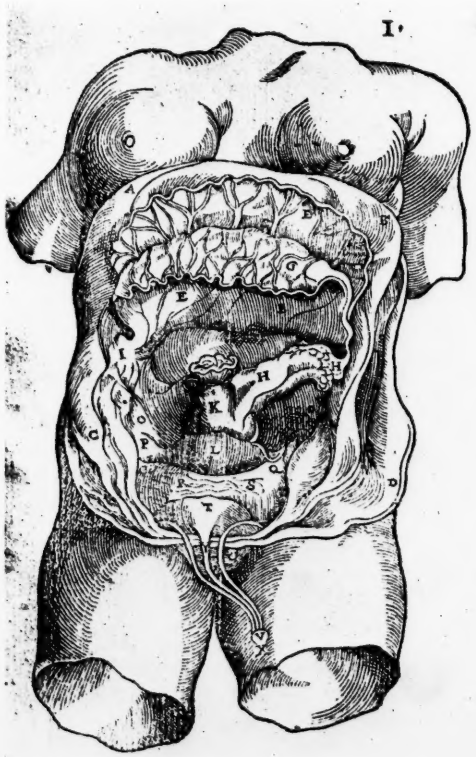
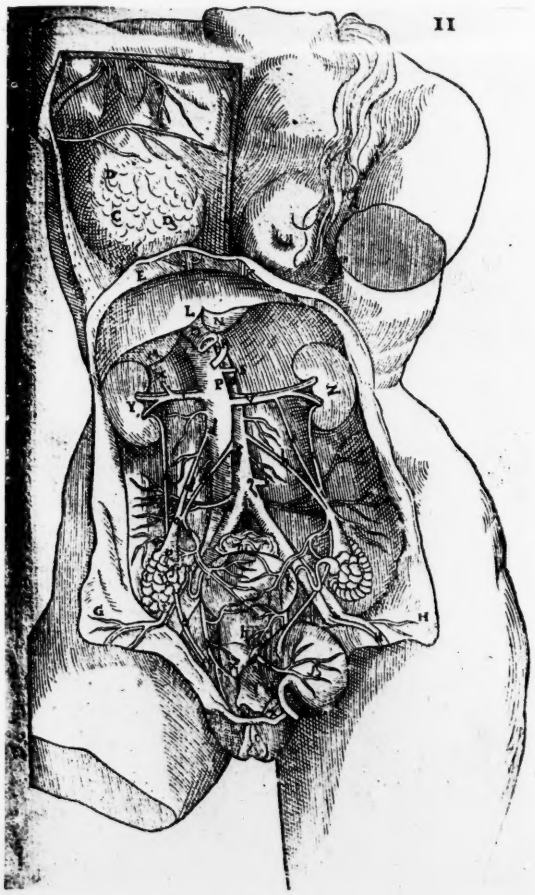


Fig. V.



Anatomical Figures in the "Byrth of Mankynde."

Fig. VI.

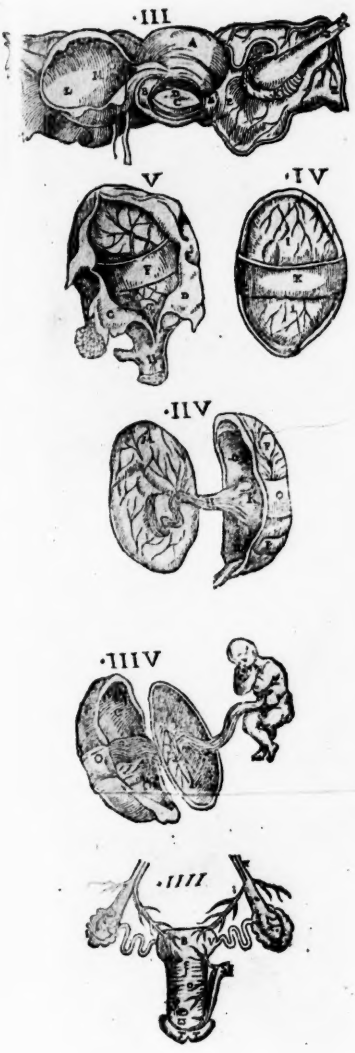


Fig. VII.

Anatomical Figures in the Byrth of Mankynde.

Fig. VIII

Fig. IX.

Fig. VIII.

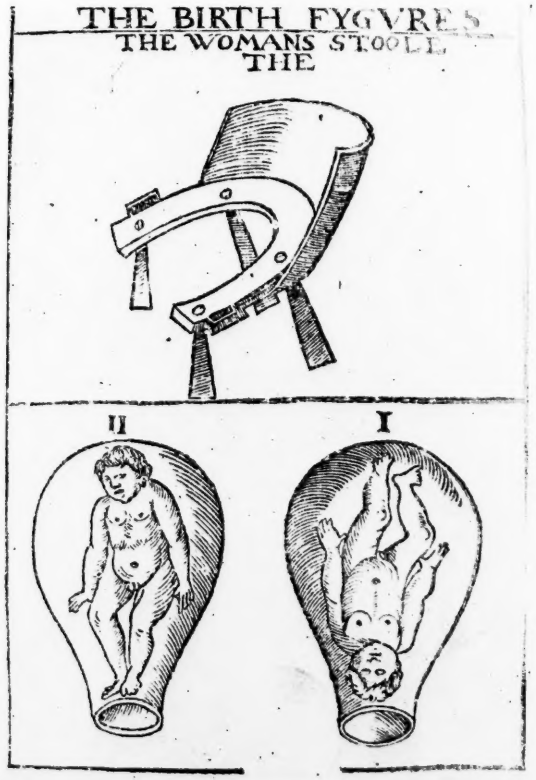
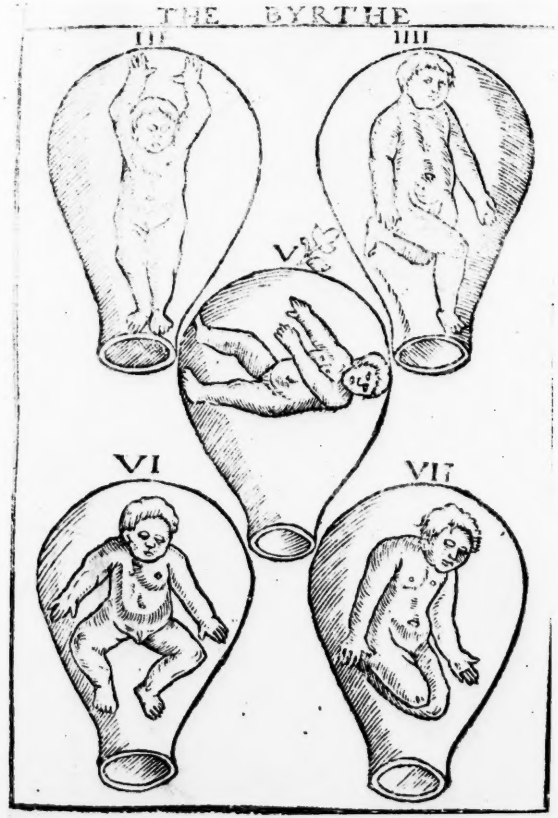


Fig. IX.



Birth Figures in the "Byrth of Mankynde."

FIG. XI.

FIG. X.

Fig. X.

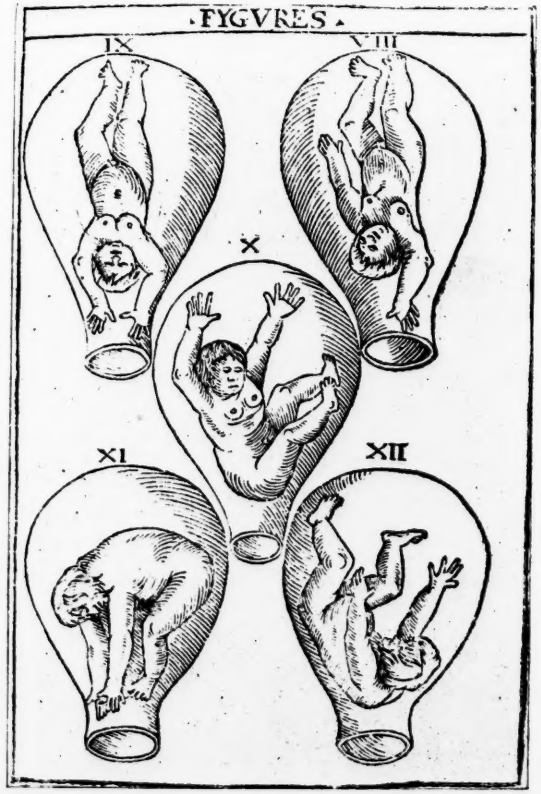
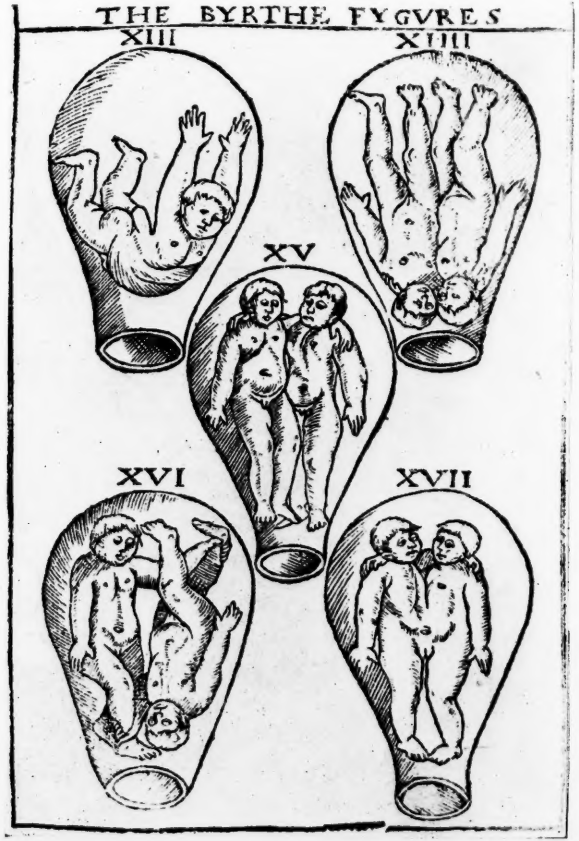


Fig. XI.



Birth Figures in the "Byrth of Mankynde."

The table of contents has some fine initial letters (F, O and I), and the initial A of the Preface is also fine and resembles that of the 1598 edition. The type is black letter throughout, but of varying size. The Edinburgh University copy contains no plates, but the description of the figures is found as usual at the end of the first book and is the same as that in the 1560 edition, containing, as it does, "The declaration of the Karacters of the nynth figure of women." The ninth figure, it will be remembered, was "the matrix cut foorth of the bodye, beyng of that bygnesse as it was seene taken foorth of a woman at the laste Anothomye, which I did see at the vniuersitie of Padua in Italie." There is no indication of the place of publication of this edition; but in the British Museum Catalogue of Printed Books the suggestion is made that it was London. At the end of the work occurs the word "Finis" with "1565" below it. Below that, again, is a fine ornamental emblem with the following sentences incorporated in it: "Cogita mori;" "Pro lege, rege, et grege;"[1] "Love kepythe lawe, obeyeth the kynge, and is good to the common welthe." The paragraph at the end of the second book closely resembles that in the 1560 edition and widely differs from the corresponding passages in the 1552 and 1545 editions. It runs as follows: "And as touchyng the aboue Trochiskes and emplasters described in this place, ye shall fynde them alwayes redye made in Boucklers berie in London."

The motto referred to above as occurring on the title page is that of Richard Jugge, a printer, who flourished between the years 1531 and 1577. He was educated at Eton and Cambridge, but left the latter without a University degree. He went to London and began to print books about 1548 "at the sign of the Bible at the north door of St. Paul's Church." He printed, in all, about seventy books, including Tyndale's version of the New Testament and the Bishops' Bible. "He was unrivalled for the richness of his initial letters, and for the handsome disposition of the text." So writes H. R. Tedder in the *Dictionary of National Biography* (vol. xxx., p. 224); and my inspection of the two editions of Raynalde's *Byrth of Mankynde* which Jugge printed (this one and the next to which I refer) fully bears out the truth of the statement. A favourite device on his title pages was a rebus of his own name. It consisted of an angel holding an R, and of a bird (nightingale), in a nest with "Jugge" "Jugge"[2]

[1] This is the motto of the Earl of Beresborough and of Lords Brougham and De Mauley.

[2] "Jug," Jug," is an imitative representation of the notes of the nightingale's song.

printed above it. This enigmatical representation occurs in the undated edition to which I must now briefly refer.

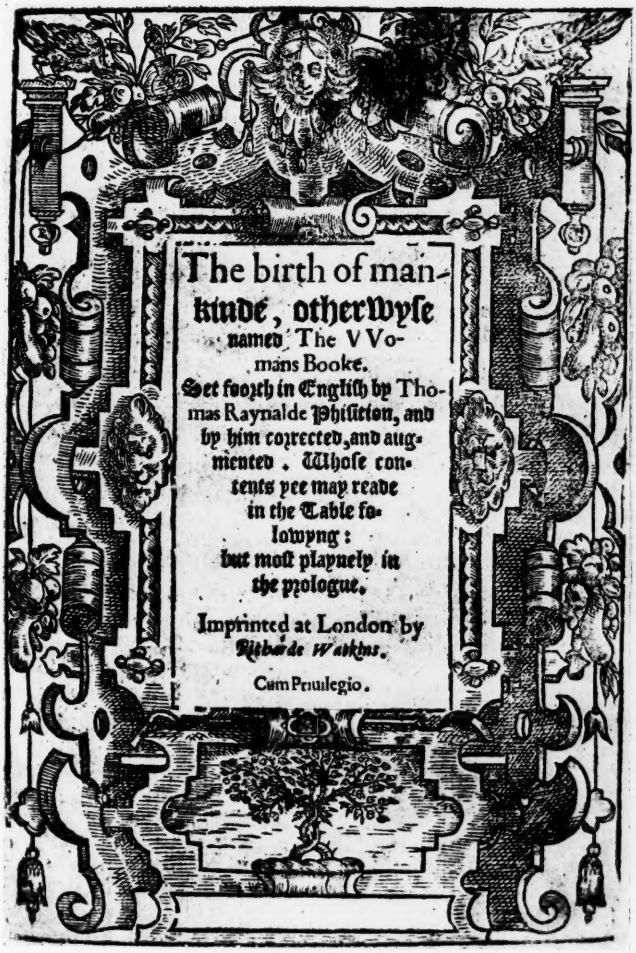
(f) *The Undated (1564?) Edition.*

There is an undated edition printed, like the 1565 edition, by R. Jugge; to this the provisional date of 1564 may perhaps be given. I have examined two copies of this edition; one of these is in the Library of the Royal College of Physicians of London, and the other belongs to Dr. J. F. Payne, the Harveian Librarian of the College. This edition has a finely executed title page, resembling in some details that of the 1565 issue. At the top is the motto of the Crown of England ("Honi soit qui mal y pense"), and at the bottom is the pelican feeding her young with her own blood. The printer's motto occurs in the ornamental border: at one side is an angel (or Cupid) holding the letter R, and at the other a bird (nightingale) in a nest with the word "Jugge" over it. The title is preceded by the paragraph sign (¶), and the setting is as follows:—

¶ The Birth
of mankynde, other-
wyse named the wo-
mans booke
Newly set foorth, corrected, and
augmented. Those con-
tentes ye may reade in
the Table of the
booke, and
most
plainely in the
prologue.
By Thomas Raynalde
Phisition.

At the end of the work is a fine colophon with the same mottoes ("Pro lege," etc.) as in the 1565 edition. Some of the capital letters are markedly ornate, such as the A in the Preface and the F in the Table of Contents. The work contains 131 leaves and 13 preliminary leaves (288 pages). The College of Physicians' copy has one folding plate giving nine figures of the organs of generation, of which the ninth is on a larger scale than it appears in the other editions I have seen; but the Birth Figures are lacking. Dr. Payne's copy, on the

Fig. XII.



Title Page of the 1598 Edition.

Fig. XIII.

LL be it some *Aristarchus* may perhappes finde some lacke of faythfulnes and diligence in this worke: yet there is none so frowarde to deny, but that there is some frute and profite to bee founde therein, seeing that it commeth now abroade much more enlarged and encreased, and more diligently corrected, then it was before eyther in the Latine or in the English. And where before in the other printes, there lacked matter necessarie to the opening and declaration of the Figures parteyning to the inner partes: it is now so plainely set foorth, that the simplest Mydwife which can read, may both vnderstand for her better instruction, and also other women that haue neede of her helpe, the more commoditie. VVherefore my desire is, that it may be receiued and practised of Midwiues, and all other Matrones, with no lesse successe then it is with good wyll and desire written, to profite, and to do good to other.

other hand, has the Birth Figures but lacks the folding plate of the anatomical illustrations. No doubt a perfect copy had both sets of figures, for both are described in the text.

The paragraph at the end of the second book reads as follows: "And as touching the aboue Trochiskes and emplasters described here in this place, ye shall fynde them alwayes redy made in Bucklers berie in London." It will be noted that this very closely agrees with the corresponding paragraph in the 1565 edition (q.v.).

(g) *The 1598 Edition.*

The edition of 1598 contains 204 pages and three preliminary leaves. It has an ornate title page (reproduced in fig. 12) and the title is partly in black letter and partly in ordinary type. There are five wood-cut plates containing nine figures occupying pages 83 to 88; the "Woman's Stoole" and seventeen "birth fygures" (in four plates) are found on pages 107 to 110. On the title page is the information that the work was "imprinted at London by Richard Watkins. Cum Priuilegio."; and on the last page is the statement "Imprinted at London by Richard Watkins. 1598." Further, in the scroll work near the top of the title page are the initials R.B. and T.G., in the form of monograms. The preface with a fine large initial letter is reproduced in fig. 13. In the table of contents I notice that the word "folio" is used for the odd numbers and "page" for the even numbers.

The copy of the 1598 edition which I have seen belongs to Dr. C. E. Underhill, to whom I am much indebted for permission to examine it. It is a fine and perfect copy; from the book plate, it is seen that it was once the property of F. R. MacDonald, M.D. The margins are wide, and the marginalia are not in black letter, although a large part of the work is so printed. There are practically no MS. notes in it.

It is noteworthy that in this edition the reference to "Boucklersberie" in the passage at the end of the second book has disappeared. It reads as follows: "And as touching the aboue Trochisks and emplasters described here in this place, yee shall finde them alwayes readie made in some Apotheries (*sic*) shoppes in London." This declaration concerning the Trochisks appears in practically the same form in the 1626, 1634, and 1654 editions; there was now no longer any need to specify any one shop where they were to be obtained, and doubtless "Wylliam Normeuyl" of the Three Doves had long since passed to his rest.

Richard Watkins, the printer of the 1598 edition, dwelt in St. Paul's Churchyard, and had a shop adjoining to the little Conduit, in Cheap. He had a patent, with James Roberts, for printing almanacks, and he was Warden of the Stationer's Company in 1583. He gave up his right of the sheet or broadside almanacks to the relief of the poor stationers. In 1598 he seems to have given the license for printing the "Byrth of Mankynde" by assignment to Thomas Adams, who dwelt at the White Lion, St. Paul's Churchyard. Adams appears as the printer of the 1604 edition.

It is noteworthy that comparatively few editions of Raynalde's "Byrth of Mankynde" appeared during the long reign of Queen Elizabeth. I have found no trace of any between 1565 and 1598. It is true that in the catalogue of the Radford Library in Manchester there is named an edition of Raynalde's work with the date 1593 in brackets appended; but it seems likely that this is the 1598 edition, for the date appears only in the colophon of that edition, and the 8 is rather like a 3.

(h and i) *The 1604 and 1613 Editions.*

I have not had an opportunity of examining either the 1604 or the 1613 editions. Of the former there is a copy in the British Museum and one in the Library at Washington, while of the latter the Royal College of Surgeons of London has two copies. Apparently these editions resemble the ones preceding and those immediately following them. The 1604 edition is a black letter quarto of 204 pages and was printed by T. Adams, London (*vide supra*).

(j) *The 1626 Edition.*

The edition of 1626 is a small quarto of 204 pages, including those of the Prologue but not those of the Table of Contents. The title page is very elaborately ornate, but in the copy which I have seen it is roughly printed and somewhat blurred. The arrangement and spelling of the words of the title are as follows:—

THE
BIRTH
OF
Man-kinde;
Otherwise named
The Woman's Booke,

Set forth in English by Thomas
Reynald Physitian, and by him
corrected and aug-
mented
The Contents are in the Table follow-
ing, but chiefly in the Prologue.
LONDON
Printed for A.H. and are to be sold
by James Boler.
1626.

The initial letters are poor; and at the end of the work is simply the word FINIS. This edition is only partly in black letter. The illustrations are arranged in two groups: five plates containing nine figures are placed at the end of the first book and occupy pages 83 to 87; the four plates with the seventeen "Birth Fygures" appear at the end of Chapter IV. of the second book and occupy pages 107 to 110. The first group contains as usual, the illustrations of the female generative organs, and of the fœtus and the placenta and membranes; the latter contains the picture of the "Woman's Stoole," and the figures showing the various presentations of the fœtus, including the four twin cases. The copy of the 1626 edition, which is in the Library of the University of Edinburgh, was presented to that Library in 1881 by Dr. (now Sir) Dyce Duckworth; he bought it at a sale in the Midlands. Written on the back of the title page is "1681, Mary Buxton owns (?) this Book." Mary Buxton must, I suppose, have been a Seventeenth Century midwife, but I do not find her name mentioned in Dr. Aveling's work on "English Midwives."

(k) *The 1634 Edition.*

Another edition was that of 1634. There are several copies of this edition in England; there is one in the British Museum, one in the Library of the Obstetrical Society of London, and one in the Library of the Royal College of Physicians of London. To the Harveian Librarian of the College of Physicians I am much indebted for the opportunity of examining the last named copy.

There are 204 pages and 3 preliminary leaves in this edition. The title-page has a wood-cut border of an ornate kind, well supplied with devices heraldic in appearance; in it there are figures of Fides, Humilitas, etc. The setting of the title is as follows:—

The Birth
of Man-kinde;
Otherwise Named,
The Womans Booke.
Set forth in English by Thomas
Raynald Physitian, and by him
corrected and augmented.
The contents are in the Table fol-
lowing, but chiefly in the Prologue.
London. . . Printed for A.H. and are to be sold
by John Morret, at the two Tuns
in little Britaine.
1634.

The preface is in English. The printing is partly black letter and partly ordinary type, and the marginalia are in ordinary type. In the table of contents the even numbered pages are referred to as pages and the odd numbered ones as folios; there are also directions for the placing of the plates. The interesting passage at the end of the second book is thus rendered in this edition: "And as touching the aboue Troschiskes and emplaisters described here in this place, yee shall finde them alwayes ready made in some Apothecaries shoppes in London." The whole sentence is in black letter except the word "London."

It appears to me from a comparison of this edition with the so-called 1540 edition of the Obstetrical Society of London that the latter is really the same, that it is in fact the 1634 edition. But the MS. title page has been copied, so it seems to me, from one of the editions printed by Richard Jugge, that namely which is undated but which may have been published about the year 1564. The transcribed pages at the end may have been copied from the same.

In 1634 Paré's works were translated into English, and from this time Raynalde's book declined in influence and importance.

(l) *The 1654 Edition.*

The 1654 edition is the first that is entirely printed in Roman type; the black letter which was small in quantity in the 1634 edition has disappeared altogether in this. The title-page, also, marks a new departure (Fig. 14): it is destitute of all ornamentation; the wording is different; an enumeration of the contents is given; and there is a reference to the illustrations. A third name is now given to the work, for the title reads: "The Birth of Mankind, otherwise called

Fig. XIV.

4k
N

THE Birth of Mankind,

Otherwise called,

THE WOMANS BOOK.

OR,

A Guide for VVomen,

In their { Conception. / Bearing, and / Suckling their Children.

CONTAINING

1. *The Anatomie of the Vessel of Generation.*
2. *The Formation of the Child in the Womb.*
3. *What Hinders Conception; and its Remedies.*
4. *What furthers Conception.*
5. *A Guide for women in Conception.*
6. *Of Miscarriage in women.*
7. *A guide for women in Labour.*
8. *A guide for Women in their lying in.*
9. *Of Nursing of Children.*

Illustrated with Figures.

Translated into English by *Thomas Reynald*, Doctor of Physick.

The Fourth Edition Corrected and Augmented.

LONDON,
Printed for *I. L. Henry Hood*, *Abel Roper*, and *Richard Tomlins*, and are to be sold at their Shops in *Fleetstreet*, and at the Sun and Bible in Pie-Corner, 1654.

Title Page of the 1654 Edition.

Fig. XV.

Directions for the nurſing of Children, and how to chooſe a good nurſe.

I Am of opinion that it is fit for every Mother to nurſe her own Child, becauſe her milk which is nothing but the blood whitened, which nouriſhed the child in the womb and of which the child was conceived, and formed, is fitteſt, and more naturall to the Child, then the milk of a Stranger, and by the womans nurſing her Child, ſhe ſhall be wholly accounted his Mother, but in caſe the Mother be ſick or weak, or hath no milk, or that her Husband will not let her nurſe her Child, then it is neceſſary to look out a nurſe, but moſt men doe know how hard it is to get a good one.

Now in chooſing a Nurſe there is foure things obſervable.

Firſt, concerning her Parentage, ſhe muſt come of good kindred, and honeſt Parentage, that is not ſtained with any vice, for often times we ſee that although the Father and Mother be healthy, and ſtrong, and ready witted, yet oftentimes the Children are weak and ſickly, or elſe fools.

2. Touching her perſon, for her Age, ſhe ſhould be at her full growth, about 22 yeare of Age, and ſhe will continue good untill ſhe be forty years, for after forty

Supplementary Matter in the 1654 Edition.

the Woman's Book, or a Guide for Women, In their Conception, Bearing, and Suckling their Children." It is also entitled "The Fourth Edition Corrected and Augmented;" but, of course, it was rather the twelfth than the fourth, unless indeed we understand the inscription to mean that it was a corrected and augmented impression of the fourth edition. The augmentation would seem to consist mainly of two and a half pages added at the end of the fourth book, numbered 191, 192, and 193; they follow the original pages 191 and 192. These pages contain "directions for the nursing of Children and how to choose a good nurse," which are additions to the statements already given in Chapter II. of the third book. One of them is reproduced in Fig. 15.

The work consists of 195 pages and 3 preliminary leaves. There is no colophon. On the title-page is the statement that it was printed in London "for J. L. Henry Hood, Abel Roper, and Richard Tomlins, and are to be sold at their shops in Fleetstreet, and at the Sun and Bible in Pie-Corner, 1654." The table of contents is numbered according to pages and not at all according to folios (cf. the 1634 edition, etc.). The anatomical plates occupy pages 81 to 86, and the Birth Fygures pages 105 to 108 (misprinted 118). The paragraph at the end of Book II. (referring to the Apothecaries of London) is practically identical with that in the 1634 edition, save that the spelling is modernized. Throughout the whole work there is a modernizing of the spelling and of the form of the words, so that this edition resembles closely other books published about the middle of the seventeenth century.

(m) *The 1676 Edition.*

A copy of the 1676 edition is in the British Museum; and it is stated in the Catalogue to be a black letter copy. So far as I have been able to discover this was the last edition to appear. Doubtless the growing popularity of Paré's works, and the appearance of "The Expert Midwife" (translation of Rueff's work), of Culpeper's "Directory for Midwives," of "The Compleat Midwife's Practice," and of P. Chamberlain's "Midwife's Practice," tended slowly to dislodge the "Byrth of Mankynde" from the position of supremacy which it had so long occupied during the sixteenth and seventeenth centuries.

The Various Editions.

I have now passed in review the various editions of the "Byrth of Mankynde," of which I have found any trace. It is possible that

there may have been others. For instance, McClintock in his annotations on "Smellie's Midwifery" (vol. i., p. 53, 1876) refers to a 1606 edition which he had seen, but he adds "the 0 here has somewhat the appearance of having been surreptitiously altered with a pen and may have been printed 2." I think it is probable that it was really the 1626 edition that he had to do with. There are, therefore, thirteen known editions, or fourteen if we admit the Radford Library 1593 edition. Of these I have been able to examine nine. I have also seen four other copies, but they were duplications of the 1560, 1564 (?), and 1654 editions In all I have traced forty copies to their present resting places either in public libraries or in the private collections of medical men; and on the following page I give in tabular form the editions and where they are at present to be found.

I gladly take this opportunity of acknowledging my indebtedness to the following gentlemen for facilitating my researches: Drs. Cullingworth and J. F. Payne (London); Professor Stephenson (Aberdeen); Drs. W. L. Reid, Lawrence Oliphant, and John Ferguson (Glasgow); Dr. Underhill, Dr. Barbour Simpson, and Mr. J. R. N. Macphail (Edinburgh); and the Librarian of the Army Medical Museum and Library, Washington, U.S.A.

Summary of the Editions of the "Byrth of Mankynde."

Edition of 1540. Jonas's Translation of Rösslin. British Museum.

Edition of 1545. Raynalde's Translation. Royal College of Physicians, London; Hunterian Library, University, Glasgow.

Edition of 1552. Raynalde's Translation. Royal College of Physicians, Edinburgh; and London Obstetrical Society.

Edition of 1560. Raynalde's Translation. Royal College of Surgeons, London; Dr. J. W. Ballantyne, Edinburgh; University of Aberdeen.

Edition of 1565. Raynalde's Translation. British Museum; University of Edinburgh; R. College of Surgeons of London; Washington Library; Hunterian Library, University, Glasgow.

Edition of 1564 (?). Raynalde's Translation. British Museum; University of Glasgow; Royal College of Physicians, London; Dr. J. F. Payne, London.

Edition of 1593 (?). Raynalde's Translation. Radford Library, Manchester.

Edition of 1598. Raynalde's Translation. British Museum; Royal Medico-Chirurgical Society of London; Dr. C. E. Underhill; Washington Library; Hunterian Library, University, Glasgow.

Edition of 1604. Raynalde's Translation. British Museum; Washington Library.

Edition of 1613. Raynalde's Translation. Royal College of Surgeons of London (2 copies).

Edition of 1626. Raynalde's Translation. British Museum; University of Edinburgh; London Obstetrical Society; Faculty of Physicians and Surgeons of Glasgow.

Edition of 1634. Raynalde's Translation. British Museum; Royal College of Physicians, London; London Obstetrical Society; Washington Library.

Edition of 1654. Raynalde's Translation. British Museum; Washington Library; Dr. W. L. Reid, Glasgow; University of Aberdeen.

Edition of 1676. Raynalde's Translation. British Museum.

[The Second Part of this article, dealing with the CONTENTS of Raynalde's *Byrth of Mankynde* will appear shortly.]

Oliver Wendell Holmes and Semmelweis.

By Tiberius von Györy, M.D.,

Docent of Medical History at the University of Budapest.

In the *Journal of Obstetrics &c. of the British Empire*, for December, 1905, C. J. Cullingworth immortalized the memory of Holmes, one of the most eminent physicians of the pre-Semmelweis era, and revived his work concerning "the contagiousness of puerperal fever."

Who can tell how many women have been indebted for their lives to the precautions drawn up in his "conclusions" so warmly recommended by Holmes to his professional brethren! Posterity, therefore, is only doing Holmes justice in acknowledging its debt of gratitude by honouring his memory.

I have no desire to be a "wet blanket," nor do I wish to depreciate Holmes's merits, and this is certainly no place for an "apology" in defence of Semmelweis. But I fear there may be some who will consider Holmes's "conclusions" (if only at first sight) to be identical with the discovery and teaching of Semmelweis. And, if such were the case, in the name of justice we should be compelled to tear the laurel wreath of priority off Semmelweis's brow and present it to Holmes. For Holmes published his conclusions in 1843, whereas Semmelweis did not make his discovery until 1847. My fear that the results of the respective researches of the two men may be considered identical is increased by the fact that in 1902 Simon Baruch, of New York, actually declared for the identity and did not hesitate to deprive Semmelweis of all claims to priority in favour of Holmes.

On the present occasion it is my duty to show, in the light of objective truth, what connexion there is between the views of Holmes and the teaching of Semmelweis, or, rather, what are the merits of Holmes and what do we owe to Semmelweis. The answer will be found in a few data of the history of puerperal fever.

If we peruse the annals of this destructive, almost epidemic complaint in the Forties—that is, immediately prior to the appearance of Semmelweis, we may recapitulate in brief the long story told in these passages as follows: The utmost chaos, an absolute want of method, prevailed in regard to the views, opinions, and

precautions to be taken to prevent puerperal fever. A hundred different views were circulated at the time, a hundred various kinds of measures were taken to hinder the ravages of the disease, which was then considered epidemic. *Quot medici, tot scholae* may be said of that period. Among the many useless measures and erroneous views held at that time, only one theory appears in an advantageous light—namely, the theory of the contagiousness of puerperal fever. The advocates of this theory, though their views concerning the etiology of the disease were absolutely erroneous, displayed an activity in prophylaxis that was distinctly beneficial as preservative of life in certain cases of puerperal fever. In the Forties the most eloquent supporters of this theory, which later on they attempted to propagate all over Europe, were the British and American physicians.

Classifying puerperal fever as a contagious disease, the "Contagionists" took all possible precautions to prevent the supposed contagion being carried from living persons, or corpses either, to healthy women in childbed. In accordance with their theory they never by any chance went direct from a case of puerperal fever or from a patient suffering from the presumably infectious erysipelas to the bedside of healthy women lying-in; and as they believed that contagion survives the victim, they avoided passing straight from the dissection of victims of puerperal fever or erysipelas to the bedside of healthy women. The Contagionists were in this respect so conscientious, so scrupulous in taking the consequences of their theory, that they actually undertook long journeys before recontinuing their obstetrical practice. There were physicians who extended their precautions to cases of typhoid fever also.

The precautions of the Contagionists were the result of a false etiology, nevertheless they were beneficial to humanity. To-day we know well that the physician who is not very scrupulous after attending a case of puerperal fever can infect a woman in labour, not by the specific contagion of puerperal fever, but by pyogenetic bacteria.

The experience made was right, but not the interpretation thereof; the etiology established by the Contagionists did not comprehend all possibilities, did not unite all the etiological factors discovered by Semmelweis.

It is a lamentable fact that even to-day there are obstetrical books in which the discovery of Semmelweis is considered to be merely a precise form of the "theory of corpse-virus." Semmelweis himself,

who was well acquainted with the opinions and the precautions of the Contagionists, remarks about them:—

"They acknowledged one portion of the truth, but not the whole truth, and there may have resulted out of the non-acknowledged part of the truth many cases of resorptional fever which might have been prevented."[1]

Prior to Semmelweis's discovery the English and American Contagionists saved many lives, which would have been sacrificed in the hands of physicians advocating any other of the many theories of the day.

No doubt it was an act worthy of acknowledgement and appreciation that Holmes published his essay on the contagiousness of puerperal fever, and that he re-issued it later in pamphlet form, recapitulating in the form of "conclusions" all precautions hitherto successful in preserving life, requiring and insisting upon their observance by his professional brethren.

Then came the year 1847. The "sun of puerperium had risen." Semmelweis discovered the whole, eternally true, etiology of puerperal fever. He discovered that puerperal fever and pyemia are identical processes, proved that puerperal fever may result from the resorption of any decomposing organic substance. As is well known, Hebra and Skoda, in their widely-circulated periodical, *Zeitschrift der k. k. Gesellschaft der Aerzte zu Wien.* (1847–48), published the teaching of Semmelweis. In the year 1850 Routh familiarized the British profession with the causes of endemic puerperal fever, and in his publication re-issued later in pamphlet form he produced proofs to convince his readers of the non-contagiousness of the same.

It was not merely Routh who informed the Contagionists of their error; Semmelweis himself, as we learn from his writings, wrote letters to his antagonists, the opponents of his teaching, attempting to enlighten them and convince them of the truth of his statements.

The first answer and the first refusal came from the Contagionists, especially from their principal advocate, Simpson of Edinburgh. For years, right up to his death, Semmelweis waged war against the Contagionists. They clung stubbornly to their old theory, considering puerperal fever to be a disease of a specific nature, which, as such, can be transposed from one individual to another; on the other hand, Semmelweis, identifying puerperal fever with pyemia, put the etiology of the former on the broad basis of the latter. There is no publication of Semmelweis on puerperal fever which does not throw into relief the enormous difference

1. v. György: Semmelweis, gesammelte Werke, p. 477.

existing, like a chasm, between his doctrine and the theory of the Contagionists. In a voluminous work published in 1860 he describes the nature of "the difference of opinion between me and the English physicians on the question of puerperal fever."[1] Even in his "Open Letters," written towards the end of his life, many pages are full of his bitter, almost desperate, struggle against the Contagionists, a fact which proves that even in the Sixties the latter refused to accept his teaching, as well as that the doctrine of Semmelweis and the theory of the contagiousness of puerperal fever were not identical.

I have done my best to give a short explanation of the great difference between the doctrine of Holmes and that of Semmelweis—principally, as I mentioned in my introductory words, to prevent the resemblance between the two that appears on a cursory glance being mistaken for an identity. But I am ready myself to do historical justice to Holmes. It would be against all historical sense to deny the merits acquired by a prominent man or to deny him credit for the benefits he has conferred upon humanity merely because he was succeeded by another age and another man who discovered the whole truth.

But to do Holmes the justice due to him I must divide the activity of the Contagionists into two periods. In the post-Semmelweis period the Contagionists clung to the fragmental truth they had discovered, and prevented the spread of the teaching of Semmelweis, an action for which they deserve the greatest reproach. And in the pre-Semmelweis period, when all the myriad other theories did not contain even the germs of the truth, the Contagionists had already discovered a part of the same, and put a great number of women attended by them under the protection of an etiology that was well if only partially grasped but incorrectly interpreted.

That was the glorious period of the Contagionists. In rendering our tribute of gratitude to them for their activity in this period we must do partiular homage to the memory of the most prominent man amongst them—to O. W. Holmes—because nobody did more to accentuate the urgent necessity of the salutary precautions known at that time, and formulated by him in his *Conclusions*. C. J. Cullingworth has rightly perpetuated his life and activity.

[The address on Wendell Holmes and puerperal fever, to which the above communication refers, having been published in this JOURNAL, we readily assented, as a matter of fairness, to the request

1. v. Györy: Semmelweis, *ibid.*, p. 83.

that we would give insertion to this translation of Dr. v. Györy's reply. We would, however, remind our esteemed colleague that the address in question was a record of historical fact and contained no remark derogatory to the fame of his disinguished countryman, that Holmes and Semmelweis were both of them pioneers in regard to the elucidation of the true nature of puerperal fever, that great as was the work they accomplished it was not given to the one any more than it was to the other to discover the whole truth or to attain to finality in the matter, that an entirely new light was shed upon the question by the subsequent researches of Pasteur and his successors, and, lastly, that disputes as to priority are alien from the true scientific spirit and are of all unprofitable things the most unprofitable. Ed. *Journ. Obst. and Gyn. Br. Emp.*]

Primary Carcinoma of the Ovary.*

By A. Louise McIlroy, M.D. (Glasg.), L.M. (Rotunda Hosp.).

Extra-Dispensary Gynæcologist, Glasgow Royal Infirmary.

On looking over the literature on the subject one is struck by the number of cases of carcinoma of the ovary which have been reported without any detailed statement as to the condition found on microscopic examination. Having had the opportunity during the past two years of investigating a number of specimens of this condition, I have been led to enter upon a somewhat careful examination of the different forms of malignant change which the ovary may undergo. The enormous number of ovarian tumours which pass through the hands of the surgeon should afford ample material for research into the comparative frequency of malignant disease occurring among these tumours. Many specimens are put aside as of little interest to the pathologist, and attention is only drawn to them later when the patient returns with evidence of cancerous deposits in other organs.

For the purpose of the present paper fifteen cases of ovarian carcinoma were investigated. The cases chosen were, as far as possible, those in which the question of cancer occurring as a primary growth elsewhere could be eliminated, the patients' symptoms being solely ovarian. All cases in which the microscope showed the presence of endotheliomatous or sarcomatous changes were excluded.

In order to amplify the investigation the various points of interest in connection with the clinical symptoms will be given.

I was fortunate in being able to carry out this work in the gynæcological department of the Glasgow Royal Infirmary, and I have to express my indebtedness to Dr. J. K. Kelly for the use of the material under his care. I have also to thank Professor Murdoch Cameron, Dr. W. L. Reid, and Dr. John Edgar for permission to make use of specimens which they had obtained by operation. I have received much help in the examination of the microscopic sections from Professor Charles Workman and Dr. John H. Teacher.

Clinical Investigation.

Frequency. Carcinoma beginning in the unchanged ovarian tissue is a very rare disease, and very few cases are recorded as such;

* A résumé of this paper (followed by a lantern demonstration) was read before the Obstetrical Society of London, July 4th, 1906. For an account of the discussion, see the August number of this Journal, p. 193.

but carcinomatous change as a secondary complication of a previous pathological but benign condition of the ovary is frequent. Its frequency may depend largely upon the degree of advancement of these benign growths. The question at issue is: "If these conditions are allowed to remain would they eventually undergo malignant change?"

Age. The age at which we find most cases occurring corresponds with that of carcinoma in other pelvic organs—that is, near or after the menopause, between 40 and 50 years of age. One patient, however, was aged 24, two were 25, and one was 29. The solid forms of the tumours seem to occur in younger patients than the cystic.

Previous Pregnancies. In seven of the cases the patients were unmarried and nulliparous. In the others pregnancy had not taken place on an average during the ten years previous to operation.

Family History. The evidence was negative as regards carcinoma with the exception of one case where the patient's mother had died of carcinoma of the mamma.

Menstrual History. In most of the cases where the menopause had not yet occurred the presence of the growth had caused amenorrhœa for several months before the operation. In one case there was metrorrhagia, and in another the menses were regular. Previous dysmenorrhœa was not a marked symptom in any of the cases.

Duration of Growth and Symptoms. The great difficulty in determining with accuracy the time of the onset of the disease is the fact of the few symptoms observed by the patients, who as a rule only seek advice when the size of the abdominal swelling becomes noticeable, or when it impedes the proper function of the respiratory and circulatory systems. Dartigues[1] observes that there is "good health previous to the first clinical manifestations of the neoplasm." The growth may have been present in benign form for some time without the patient having been conscious of it, and her attention is directed to the pelvic condition only when some of the constitutional symptoms of malignancy have supervened. The patient may appear to be in good health until a few weeks before seeking advice. One patient with a large tumour had only been aware of its existence for two weeks. In most of the cases the symptoms—slight at first—were noticed for about six months or a year. The chief symptom complained of is *swelling* of the abdomen, beginning in one or other side, which as it increases causes œdema, dyspnœa, etc. *Pain* is not a marked feature; it is more frequently present in tumours of the solid type than in those of the cystic. It depends upon the degree of

advancement of the growth and the presence of adhesions. The difference between the symptoms of primary and secondary carcinoma of the ovary is that in the latter condition the patient shows a greater degree of emaciation and feebleness than in the former.

Mobility. These tumours are generally mobile; sometimes, if they are of large size, they are entirely extra-pelvic in situation.

Diagnosis. The diagnosis from benign ovarian growths is difficult, unless general symptoms of malignant disease be present. In two of the cases the question of pregnancy was raised. In one multiple fibroids of the uterus were diagnosed. Malignancy was suspected in four of the cases. In two the patients appeared to be in good health. In the remaining cases the diagnosis of ovarian cystoma was made.

Ascites. This was present in every case, the amount varying considerably. The colour of the fluid was pale straw in some cases, and chocolate in others; the presence of blood in the fluid was not always observed, and is not so much a factor in the diagnosis as is generally supposed; its presence probably depends upon the degree of advancement and character of the growth.

The *pedicle* has the same characters as that of the benign growth, being broad and flattened in most cases, short and narrow in others. In one case infiltration of the pedicle by the tumour growth was found. Torsion is rare, although several of the tumours show areas of hæmorrhagic infiltration and necrosis.

Ovaries affected. In most of the cases the growths are bilateral, one larger than the other in every case, and the larger tumour showing a more advanced type of the disease, and sometimes bearing different microscopic characters from those of the smaller. In some of the specimens the ovary of one side was transformed into a large cystic mass, the opposite—or smaller—ovary being solid in consistence and only about double its normal size.

Fallopian Tubes. The tube is rarely affected in the earlier forms of the disease. In the later stages, however, and in the papillomatous varieties it is usually involved, a fact which may only be discovered on microscopic examination, the tube appearing normal to the naked eye. In one case, where the disease ran a very rapid course, the tubes and also the round ligaments were infiltrated with the growth.

Metastatic Growths. The presence of these depends on the degree of advancement of the growth and on the integrity of its capsule. In three of the cases deposits were found on the bladder and uterine walls. In one a mass of cystic-looking tissue was seen behind the peritoneum lying on the vertebral column. In others adhesions to

the omentum and other organs were present. It is in such cases that the question of the growth having its origin primarily in the ovary arises, and that an investigation of the other abdominal organs is required. This question of origin can only be satisfactorily settled by a post mortem examination. In only one of the cases was such an examination allowed. In this case there was no evidence of the disease having had its origin in any other organ but the ovary. In view of some recent statements made by Mr. Bland-Sutton [2] on "secondary (metastatic) carcinoma of the ovaries," we are called upon to determine the origin of the malignant condition in every case; that is to say, has it occurred in the ovary as a primary or as a secondary growth? This can only be fully determined by a post mortem examination, as it is obvious that these metastatic growths can only with difficulty be investigated at the time of the operation. In one case the patient had the history of a nodule having been removed from the mamma two years before, and of having suffered from attacks of flatulent distension of the stomach with vomiting at intervals. The ovarian tumours were found to be small and cystic with thin walls, but there was no evidence of malignancy to the naked eye. On microscopic examination carcinoma was found, however. This was a case where a more careful examination of the other abdominal organs might have been made at the time of operation had the ovarian condition been known to be other than a benign growth. If ovarian carcinoma occurs more commonly as a secondary growth why should we have a benign tumour of the ovary so frequently present. As will be seen later the malignant adeno-cystoma is more frequent than the solid malignant tumour. Is it merely a coincidence that a cystic condition of the ovary is present with malignant disease of the intestines or other abdominal organs? Is it not more probable that this benign growth is a forerunner of, or is on account of its large epithelial surface more liable to take on, malignant changes. Dr. Cuthbert Lockyer,[3] in a paper communicated to the Obstetrical Society of London, demonstrates the spread of the growth from the ovary to the tube by means of the lymphatics in the mesosalpinx. An additional proof of this was found in one of the specimens I examined. The tube appeared almost normal except for some slight proliferation of the epithelium on the surface of the plicæ; no cancerous tissue was found. In the mesosalpinx, however, small areas of cancerous tissue were found in the region of the lymphatics, thus showing an early stage in the spread of the disease from the ovary. That the uterus may become involved in advanced cases is

highly probable. Most surgeons will have observed cases of which the following may be taken as a typical example:—The patient appears to be in good health at the time of operation and malignancy is unsuspected. After operation the patient may recover from its immediate effects, but in a short time the abdomen becomes distended with ascitic fluid, emaciation is observed, and the patient shows signs of the rapid progress of the disease. It must appear that in such a case the disease had a somewhat slow growth apparently localized; with the operation it has become disseminated by the lymphatic system to the other abdominal organs, the uterus being the direct channel for its distribution. It is therefore necessary, when dealing with a case of bilateral malignant disease of the ovaries, to consider the question of a radical removal of the generative organs.

Mortality. The mortality among these cases is somewhat higher than is generally stated. Five of the patients died within three weeks of the operation either from its immediate effects or from general weakness.. In one case the ascitic fluid had collected in considerable quantity before the patient left the hospital. In another case the patient returned to the hospital five months later with great distension of the abdomen from ascites. Two of the patients who had been operated upon within the last year were reported as well. In one case the tumour could not be completely removed owing to intestinal adhesions; the patient was sent home after recovering from the operation. One died two weeks after returning home from general debility. The after-histories of the remaining cases were not obtainable.

Pathological Investigation.

The difficulty in a proper classification of these tumours of the ovary lies in their varied character. For convenience of description it has been found the simplest method to divide them according to their macroscopic appearances into *cystic* and *solid*, and in regard to their microscopic appearances to classify them according to their histogenesis.

Cystic tumours, or those in which the cystic element preponderates. The majority of the benign growths of the ovary are cystic in character and are multilocular, therefore we expect to find the same rule hold good in regard to the malignant growths. In appearance they resemble the benign cysts, so that it is often necessary to delay the diagnosis until an examination of the tissue has been made under the microscope. They vary in size from small

thin-walled cysts equal in size to an orange to large multilocular growths filling the greater part of the abdominal cavity. They are irregular in form and outline; the surface, as in benign growths, is smooth and glistening in some places, in others dull with patches of hæmorrhagic infiltration and areas of fatty degeneration, these areas being elevated in some specimens.

In the rapidly growing tumours and in advanced stages of the growth there is erosion of the capsule with proliferation of the tumour contents on to the surface. Many show much injection of the blood-vessels in their walls.

The *contents* vary as in the benign growths; they may be thick, viscid or gelatinous from the presence of pseudo-mucin, or they may be watery; some are blood-stained, others thick and chocolate-coloured with shreds of broken-down tissue, flakes of fibrin and pieces from the cyst-wall. On microscopic examination of the fluid epithelial cells, fat globules, blood corpuscles and débris are found. Cholesterine crystals are occasionally found. The surface lining of the cysts shows broken-down tissue, areas of necrosis, and in other places proliferations which are papillomatous in appearance, hard in consistence or soft and œdematous. Numerous septa of broken-down cyst-walls and groups of smaller cysts are seen on the walls. The thickness of the walls varies, the thicker portions containing numerous small cystic spaces. The most noticeable features, however, in most are the amount of degeneration present, the breaking-up of the capsule and the proliferation of the contents on to the surface. This is observed in the papillomatous varieties where the tube and sometimes the neighbouring organs become embedded in the tumour mass.

Fig. 1 shows a cyst of the ovary with papillomatous proliferations; the tube is involved in the growth, the fimbriated portion greatly increased in size and forming with the ovary a mass of vegetations which were adherent to the intestine. The appendix was also involved in the solid portion of the growth.

Solid Tumours. In the solid forms of ovarian carcinoma which are rare the tissue for the most part is solid, but many contain cystic spaces in their substance. The tumours vary in size from that of a fœtal head to that of an adult head or even to a still larger size. They frequently weigh several pounds—one single ovary weighing 6 lbs. and another 3 lbs. They retain the normal shape and configuration of the ovary, and have marked irregularities, furrows and bosses on their surface. The colour is yellowish brown or deep red, with vascular injection. The surface is smooth and glistening except where the tumour tissue is broken down and has become

FIG. I.

From Dr. W. L. Reid's case. (Natural size.)

A = Appendix adherent to solid mass in Broad Ligament.
B = Papillomatous portion adherent to bowel.
C = Cystic Ovary.
T = Fallopian tube with outer end forming a tumour mass.

necrotic, and here there is to be seen hæmorrhagic infiltration of the tissues. When cysts of large size are present they are usually to be found at either pole; they vary in size from that of a pea to that of an orange. They contain clear fluid, sometimes thick and blood-stained. The lining is smooth with occasional vegetations on the walls. On cutting into some of these tumours the tissue is found to be fibrous with coarse strands of connective-tissue forming a network. In others the tissue is soft and caseous in consistence. Proliferations on the surface are not common.

The classification of these malignant cystic and solid tumours of the ovary has been based upon their histological structure, and as all examined have borne a close resemblance to the benign forms they have been classified accordingly. None of the specimens examined showed direct evidence of cancerous growth occurring *per se* in the normal ovary, although this condition is mentioned by Orthmann.[4]

The cystic forms are divided into—

(i.) Carcinomatous proliferating glandular adenomatous cysts.

(ii.) Carcinomatous proliferating papillary adenomatous cysts.

Each group being divided into pseudo-mucinous and serous according to the character of the epithelial cells and the relationship between the activity of the secreting cells and the amount of transudation from them. This classification agrees somewhat with the benign cystadenoma pseudo-mucinosum (or serosum) evertens and invertens of Gebhard,[5] the cystadenoma pseudo-mucinosum (or serosum) glandulare and papillare of Stæckel,[6] and with the adeno-carcinoma glandulare and papillare of Pfannenstiel,[7] Orthmann,[4] Gebhard,[5] and Winter.[8] Heinrichs[9] gives an additional class—adeno-carcinoma alveolare and cystadenoma glandulare carcinomatodes.

In the solid tumours we have carcinomatous change in

(i.) Adeno-fibromata.

(ii.) Cysto-fibromata.

When there is colloid degeneration of these we have the adeno-fibroma colloides of Orthmann.[4] No examples of pure fibrous or scirrhous cancer were found. Many of the specimens contained in their structure several types of tissue, so that it is impossible to classify them under any particular heading.

Histology. The pieces of tissue removed for examination were found to show the malignant structure best when taken from the thickened portions of the walls in the cystic forms, and in the solid from the furrows in the cortex of the tumour. They were taken at

right angles to and also parallel with the surface so as to compare their different planes. The usual methods of embedding and cutting were employed. In the frozen tissue, while the sections showed the natural condition of the cells, their contents were easily lost on manipulation. For serial sections paraffin was the most suitable, but for an examination of the actual relationship between the epithelial cells and the surrounding connective-tissue it yielded unnatural results owing to the shrinking of the tissues. On the whole, embedding in celloidin was found to yield the best results for these tissues. The staining solutions used were hæmatoxylin and eosin.

Before entering upon a description of the various forms which carcinoma takes in the ovary we must first seek the origin of the epithelial elements found in the substance of these tumours. From what structures are these malignant growths derived? The following is an outline of the various theories which have been put forth as to the origin of ovarian new growths:—By the early pathologists cystic disease of the ovary was looked upon as a form of dropsy. Later on it was found that these growths had a more complex character, the cysts consisting of different compartments, some having cauliflower-like growths in their interior. The attention of many was subsequently drawn to the structural anatomy of the ovary, and the ovarian tissue was divided into connective-tissue and Graafian follicles. Thus all cystic tumours were supposed to have their origin in these follicles.

In 1848 Virchow [10] stated that the small cysts arose from Graäfian follicles having ova in them, but that the larger multilocular forms were derived from spaces in the connective-tissue lined with epithelial cells and having colloid contents. Other writers of that time believed in the connective-tissue theory—Förster,[11] etc.

In 1863 Pflüger [12] demonstrated the presence of tubules or gland-like processes lined with epithelium, and containing ova in their interior.

In 1868 Wilson Fox [13] published a long paper on the origin of these cystic conditions, in which he gives a review of the most prominent theories of the time. In this paper he mentions the following theories that were held regarding the complex ovarian cysts:—(*a*) That these cysts are developed from single cells by enlargement of the cell and the addition of a fibrous investment; the cell remains hollow or has a secondary formation of cells in its interior which give rise to colloid substance by their metamorphosis. (*b*) Cystic spaces either pre-existing or newly formed in the alveolar tissue become filled with fluid either from serous effusions or fibrinous

exudations, and become encapsulated with fibrinous tissue while epithelium is formed on their inner walls. Other theories were that the colloid material in the stroma gives rise to alveolar tissue and the condition is called alveolar degeneration of the ovary; and again that cysts are formed in the connective-tissue independent of the Graafian follicles. He refers to a specimen described by Spencer Wells as an "alveolar adenoid tumour" from the glandular structures in the stroma of the ovary. Wilson Fox, in mentioning cysto-carcinoma, says: "In two of these (cysts) I could trace the remains of a membrana granulosa which pointed to their origin from the Graafian follicle. In others a little larger, villous projections of cancerous matter were taking place through the partly-invaded wall of the follicle." He states that the majority of ovarian cysts take their origin from the Graafian follicle, the daughter cysts originating from the fusion of the tips of the villi in the cyst-wall. He says: "I am warranted in expressing the opinion that these tumours of the ovary should be classed with those which originate in other glandular organs, by an abnormal repetition of the processes of development observed in the fœtal condition, recurring with aberrations in the adult." (Here he quotes Billroth's "Researches on the Thyroid.") "I use the term aberrations because the normal process of secretion in the ovary is attended with the formation of ova as that of the testicle consists in the production of spermatic cells."

Mayweg [14] in 1868 stated that these cysts arose from connective-tissue and also from Graafian follicles, the latter theory being supported by a specimen which he found of a small papillary growth with an ovum inside a follicle.

In 1870, on the publication of Waldeyer's [15] work, an entirely different view of the whole structure of the ovary was taken. In this paper he showed that the ovary was formed from the thickened germ epithelium investing a small outgrowth rich in cells which projects from the interstitial tissue of the Wolffian body on its median side, the ova and cells of the membrana granulosa being derived from the germ epithelium becoming embedded in masses in the connective-tissue in the form of tubes (Pflüger's). The cells which have increased in size go to form the ova; the other cells by division produce follicle cells. "A genetical distinction between primordial ova and follicle epithelial cells has consequently no existence. The germ epithelium is the common source of both." In his paper on the epithelium of ovarian tumours Waldeyer derives the cystomata from Pflüger's ducts, dividing them into glandular

and papillary proliferating cysts according to the activity of the epithelium or of the connective-tissue.

This origin of the ova has been accepted by most authorities, but there has been much controversy as to the origin of the cells of the membrana granulosa. Some claimed the Wolffian body as the origin of these cells.

Balfour [16] confirmed the work of Waldeyer on the origin of the ova from germ epithelium, but was of the opinion that the connective-tissue stroma grows up round the epithelium in honeycomb form, cutting it off into masses, the germ epithelium superficial to the tunica albuginea forming a single row of cells—the pseudo-epithelium. The masses of epithelial cells internal to the connective-tissue layer form nests and become broken up into isolated follicles, the ova being formed as follows:—The nucleus of the epithelial cells becomes granular, and contains nucleoli which pass to one side, the remaining portion of the nucleus being clear; the mass becomes reticulated, one of the nucleoli forming the germinal spot. Several ova may fuse together forming polynuclear protoplasmic masses. Several nuclei may atrophy, and thus a single ovum is formed from the one nucleus; in others it gives rise to several ova by subsequent division. The remaining cells divide and form the follicle cells. The ovum developes an irregular cell membrane which comes in contact with the follicle cells.

Shortly after the publication of Balfour's paper Foulis [17] stated the results of his investigations on the human and mammalian ova. He comes to the following conclusions:—All the ova are derived from the germ epithelium. The young jelly-like ovarian stroma grows outwards and imbeds certain of these germ cells which have become surrounded by a nucleated capsule of connective-tissue. Pflüger's tubes have no existence as such, but are appearances produced by long groups of embedded germ cells some of these not being completely cut off from the germinal layer by the connective-tissue stroma. Sections through the furrows or clefts produce the appearance of the superficial epithelium passing down into the ovary as tubular open pits. "The follicle cells are derived from nuclei which lie in contact with the protoplasm or yolk substance of the developing ova."

The follicle cells originate from the connective-tissue and not from the germinal epithelium. In the ripe follicle the connective-tissue cells outside the membrana propria folliculi become converted into cells exactly similar to the true follicle cells, and they can be

traced through all the stages of development into cells resembling the follicle cells.

In 1884 Doran,[18] in tracing the origin of the common multilocular cysts, criticises the views referred to. He agrees with Balfour and Foulis that Pflüger's tubes do not exist as such, but that they are rows of follicles embedded in the stroma. In the preface he says: "These tumours (multilocular ovarian cysts) most probably arise from Graafian follicles that have never developed into corpora lutea. Under natural conditions such follicles undergo atrophy, but under certain morbid influences they develop into cysts. This cannot be thoroughly settled till the verification or refutation of Dr. Foulis's theory that the cells lining the follicles arise from the stroma and not from the germ epithelium together with the ova. If this theory be perfectly correct a purely stromal origin of cysts becomes possible. If the stroma normally produces cells to line cavities protecting ova it is easy to understand that it may under pathological influences produce such cells where there are no ova. Under Balfour's theory that the follicular cells arise with the ova from the germ epithelium each collection of such cells in the stroma must be considered to be a follicle, and any morbid growth from such cells would be of essentially follicular origin."

According, therefore, to Doran, the most probable origin of cystic disease is to be found in an arrest of the normal retrograde metamorphosis of the Graafian follicles that have never become corpora lutea of menstruation or of pregnancy. He concludes that the glandular cysts arise from the stroma of the parenchyma, the papillomatous from the hilum from relics of the Wolffian body. Remnants of the epithelium of the Wolffian body extend into the stroma of the parenchyma, so in this way mixed glandular and papillary cysts result.

In 1890 Acconci,[19] in describing a papillomatous cyst of the ovary, shows colloid degeneration of the epithelium in the papillæ. Between the epithelial cells he found ball-like small bodies with nucleus and nucleoli and equal in size to a primordial ovum; karyokinetic figures were found; many of these cells were normal, others showed degeneration, the sections resembling the ovary of the newborn in many places.

In 1891 Whitridge Williams,[20] in a paper on the papillomatous cysts of the ovary, rejects the Wolffian body theory, and states that they are purely ovarian. In his conclusions he states that they are derived from (*a*) the Graafian follicle, the usual point of origin; (*b*) the germinal epithelium, the "most frequent and perhaps

the only source of origin for the superficial papilloma, and probably the starting point for the usual form of the multilocular papillary cystomata"; (*c*) the tubal epithelium, from ingrowths of the tubal epithelium into the stroma of the ovary—not absolutely proved. Thus we may have every possible tissue given as the origin of these ovarian growths. Let us now see how these theories of origin more clearly concern the malignant changes in the ovary.

In 1893 Emanuel [21] described the large cells found in malignant ovarian tumours as *primordial ova* on account of their large size, their rounded form, and their consisting of clear protoplasm with faintly-staining nucleus and nucleoli, and with sharp contour but no cell membrane. He gives the Graafian follicle as the source of these cells. The epithelial cells in the connective-tissue which are in heaps become degenerated in the centre of the mass, break down, and thus form cysts.

In 1894 Kossmann [22] traced these cancer cells to the epithelium on the surface of the ovary, which he found in islands. This epithelium assumes a different character on proliferation, and forms glandular-like structures and pseudo-mucinous cysts.

Von Kahlden,[23] in two long papers, gives a clear idea of the origin of ovarian cysts; he gives numerous illustrations in support of his theories. The so-called germinal epithelium on the surface of the ovary sends in gland-like processes among the stroma fibres; from these adenomatous formations develop, and from them cysts. According to some of the illustrations the masses of epithelial ingrowths are very numerous. Von Kahlden describes follicle-like formations with large cells in the their interior resembling ova, which he claims to trace from invaginations of the germ epithelium, although in a previous paper on the description of a specimen of adenoma of the Graafian follicle he observed follicle-like structures consisting of rows of cubical cells surrounding a central disc of protoplasm. In the smaller discs a faintly-staining nucleus is seen; several nuclei appear as the follicle grows in size; processes from the surrounding cells grow out among the connective-tissue as solid columns of epithelial cells. He does not call the central disc an ovum, but says the ring-like arrangement resembles a primordial follicle.

Pilliet and Delaunay,[24] in describing a case of solid carcinomatous tumours of both ovaries, describe little cell groups—large cells in the centre surrounded by small cells, recalling the ovum with its crown of cells. These authors refer them to the germinal epithelium.

Pfannenstiel [7] states that the carcinomatous new formations are

derived both from germinal and follicular epithelium, the papillary adeno-carcinomata from germinal epithelium, the serous cystadenomata from cylindrical gland-like invaginations of this epithelium, the pseudo-mucinous cystadenomata from the primordial follicles. He describes, with the help of illustrations, pseudo-mucinous and non-pseudo-mucinous cysts in the one ovary containing large cells like ova; these he thinks may be ova or degenerated cells.

Gebhard [5] shows, by means of an illustration, a mass of epithelial cells with large ova-like cells among them. These, he says, are not ova, but are degenerated carcinoma cells. The cells in these tumours which have undergone degeneration are derived from connective-tissue and epithelial elements. They do not produce ova, but are an abortive type. Gebhard describes rings of epithelial cells with protoplasmic masses in their centre. These rings are scattered through the connective-tissue.

Wendeler [25] comes to the conclusion that the follicle cells are derived from the connective-tissue stroma round the ovum, and that they are the source of the cells in endothelioma of the ovary.

Hauseman [26] says the large cells found in cancer of the ovary resemble ova, but are not identical. They arise from cells which have become separated from the germinal cells; they contain germ plasma. Their development is quite different from that of later ova.

Schröder [27] calls them "miscarried ova." He describes cylinder cells arranged in a ring with a central disc of protoplasm, but not containing an ovum.

Gottschalk [28] gives the primordial follicle as the source of these carcinomatous cell elements, having observed ball-like bodies which became cut off by the strands of connective-tissue, and in this way smaller bodies are formed from them and also rows of epithelium. Gottschalk calls this condition "folliculoma malignum ovarii."

Lönnberg [29] calls these large cells like ova "anaplastic carcinoma cells." He found gland-like invaginations of germ epithelium near the tumour but not in it; he calls the condition a "follicular carcinoma."

Voigt,[30] in a description of a bilateral solid tumour with small cysts, calls it an "adeno-carcinoma folliculoides," and comes to the following conclusions:—The germ epithelium proliferates and invaginates. From it the ball- or follicle-like formations arise, and from them the glandular structures, which in turn give rise to small cysts and pseudo-mucinous cysts. Adeno-carcinoma, being derived from both of these, resembles therefore follicles.

Orthmann [4] states that the adenomatous cysts of the ovary are

epithelial new growths which arise from its superficial epithelium and not from the normal germ epithelium. Primary carcinoma of the ovary may arise from unaltered ovarian tissue or from cystic adenoma. Glandular carcinoma as a primary growth arises from superficial epithelium alveolar in structure by gland-like invaginations cut off into cones and nests. "The cells are principally squamous in type, but here and there they are seen to be cylindrical. The cell nests are usually solid, but sometimes cavities of various sizes are found in their interior. These cavities contain fibrin coagula and vesicular cells somewhat resembling ova. Carcinomata developing in glandular cysts have a similar structure and arise from an atypical proliferation of the cyst epithelium. They usually grow either from the smaller cysts or from epithelial tubes lying in the connective-tissue walls of the larger cyst cavities. Secondary cavities are formed in cell masses by colloid or myxomatous degeneration of cells in the centre."

Liepmann [31] observes these large cells like ova, but calls them products of a retrogressive metamorphosis. He describes cylindrical epithelial masses in the connective-tissue, the central cells like granulosa cells,—rings of epithelial cells with large nuclei enclosing ova-like bodies in the centre. Long epithelial cell processes from these rings project into the connective-tissue forming tongues and bands. Larger spaces are seen surrounded by a layer of protoplasm with many nuclei. In the liq. folliculi are heaps of degenerated cells. He declares that these cells are not ova because he has observed similar cells in tumours of the mamma and orbit and in pseudo-mucinous cysts of the ovary. Liepmann states that their large size is due to colloid degeneration, and he gives measurements for comparison with those of true ova.

It is interesting to read, in a paper by Dr. Stevens [32] in this JOURNAL, of the gradual transformation of the spindle-shaped connective-tissue cells into the more cubical cells of the membrana granulosa with their radial arrangement. This affords an additional proof of the mesoblastic origin of these cells.

On looking back on the work of these observers it is seen that the theories as to the origin of ovarian epithelial new growths are very various, and that they include almost every structure in the ovary. When so many competent observers take the superficial epithelium as the starting point of the new growth, and so many the Graafian follicle, we are led to the conclusion that there is strong evidence of a dual origin. If the epithelium in cyst formations can take on such a complicated arrangement and a character so varied as is found in

pseudo-mucinous epithelium with its goblet cells, it can be well understood that the limitations to the varieties of epithelium in malignant new growths are wide. The origin of the ova as shown by Waldeyer is now recognized by everyone. The question of the origin of granulosa cells, however, is still disputed, although the work of Foulis seems conclusively to prove their origin from the connective-tissue. Whilst investigating the carcinomatous elements in these ovarian tumours I examined the fœtal ovary at the later months of intra-uterine life as well as at birth, and the results I arrived at are in close agreement with those of Foulis, namely, that the ovum has a cell membrane or outline of connective-tissue derivation, in the wall of which there are spindle-shaped nuclei. In the earlier stages of ripening, the cell protoplasm first of all swells up, the nuclei in the cell wall divide, and then under the action of some unknown influence on the part of the ovum these nuclei increase in size, become radial in arrangement, and finally form the membrana granulosa layer. The same influence works upon the surrounding tissue cells, and thus we have several layers of follicle cells. The bearing of the origin of these follicle cells on the growth of carcinoma will be seen later. Assuming that cysts originate in invaginations of the surface epithelium and that these cysts are also formed by a retrogressive process of delay in the disappearance of the Graafian follicle we shall now proceed to study the different characters presented by the epithelium in malignant disease of the ovary.

In all the specimens of cystic carcinomatous tumours which were examined the so-called benign growths were present as well, and in some the transition stages could be demonstrated. The epithelium lining the walls of the large cysts was of the pseudo-mucinous type, the goblet cells being easily seen. The nucleus is oval, and lies in the long axis of the cell at its base. The cell is columnar in shape, the portion which points towards the cavity of the cyst being open like a goblet. This long frail portion of the cell is supported by an intercellular substance which is stained deeply with hæmatoxylin, and which closely resembles the *glia* substance found between the epithelial cells in the cornea as described by Reid.[33] Numerous rounded vacuoles are seen lying among these cells, and are caused by distension of the cell by pseudo-mucin. The basement membrane is intact. The pseudo-mucin is homogeneous, but may be broken up into strands by the process of hardening and embedding.

Within the cyst and entangled in these strands we see spherical cells with the rounded nucleus placed in the centre or at the periphery

and having clear pseudo-mucinous contents. These are cells which have become detached from the cyst-wall. They resemble the ova-like cells found in malignant disease of the ovary, their large size being due to distension by pseudo-mucinous material. We can see exemplified at different portions of the cyst-wall the various stages of the change which occurs in the goblet cells during the transition into malignant tissue. The nuclei become larger and more rounded, the cell protoplasm becomes granular and develops vacuoles, the goblet portion becomes detached, and the cell presents therefore a more rounded outline, that is, a change from the columnar to the more squamous type takes place. The cells in the cyst-wall proliferate, and many of the proliferated cells become detached and lie free in the cavity. We have in this way a mass of irregular cells lining the cyst, and these later on, by rapid proliferation, fill the whole cavity and so form an apparently solid tumour of the ovary. These cells burrow into the connective-tissue, where they form cell-nests or masses of epithelium which proliferate in their turn as the disease advances, the cells also of the surrounding connective-tissue becoming increased in size and number.

In Fig. 2 the cell outlines are almost lost, the nuclei lying in a mass of protoplasm which forms the wall of the cyst. Small masses of epithelial cells are found through the stroma. These epithelial masses push aside the connective-tissue cells, and thus we see a somewhat concentric arrangement of the cells surrounding the mass. In places, processes from the epithelial cells branch out and become separated by the connective-tissue into small masses; in this way new growths are formed in the stroma until the whole connective-tissue disappears and an epithelial cell mass is left. The cell outline in malignant tissue disappears, and thus we have a mass of tissue mainly composed of protoplasm and pseudo-mucin and containing vacuoles; lying in it are numbers of deeply-staining polymorphous nuclei, granular and vesicular, each containing one or more well-defined nucleoli. Some of the nuclei are of very large size, deeply stained, others are clear in the central portion with the nuclear protoplasm arranged around the periphery. This latter appearance may, however, be due to the process of hardening in formalin. Karyokinetic figures are observed in many of these cells, but not in the numbers one would expect from a perusal of the observations of Farmer.[33] Evidence of direct nuclear division is found.

In most of these cystic tumours with the exception of those where the disease is far advanced, the epithelial masses are separated from the surface by a broad band of dense connective-tissue—the thickened

Objective $\frac{1}{6}$.
Ocular 6.

FIG. II.

Rings of epithelial cells with
central clear spaces.

Objective 1in.
Ocular 2.

FIG. III.

L = Lymph spaces with heaped-up cancer cells.
C = Capsule of tumour.

tunica albuginea. No epithelium is found on the surface of these tumours, but in some places is seen a single layer of flattened cells with their long axes parallel with the surface resembling cells of endothelial origin. It is possible that these are the flattened-out cells of the pseudo-germinal epithelium, or that they are the superficial layer of the connective-tissue which has taken on a protective character by being differentiated from the cells beneath. Just beneath this layer of connective-tissue or capsular layer we see small epithelial cell masses which in position and size appear to resemble the small glandular cystic formations frequently seen near the surface and in the walls of large ovarian cysts. On closer examination we see that these cell masses have several rows of cells concentrically arranged around a clearer central portion. This clearer zone contains a definite space lined with unaltered endothelial cells.

Fig. 3 shows the spread of the growth by the lymph channels, lymphocytes being found in the interior of these spaces. The central portion of the tumour is composed of degenerated tissue almost structureless in appearance. The epithelium of these glandular proliferating cysts becomes heaped up in masses giving to the unaided eye the appearance of a papillary condition, but on minute examination the distinction between this outgrowth of the epithelium and the ingrowth of the papillary forms can be seen. They are therefore to be described as papillomatous or papilliferous growths.

In the *solid* tumours and in the solid portions of the cystic forms we see the following conditions:—In some portions the tissue resembles in its structure an alveolar cancer. The connective-tissue is dense and is composed of coarse fibres; lying among these fibres are groups of epithelial cells with varied arrangement. In some of the tumours examined these epithelial cell masses were scattered through the stroma without any definite plan or arrangement. In some places large patches with radiating processes are found; at others the mass is seen to consist of a few cells only, and even single cells may be met with.

On examination with a higher magnifying power these masses are seen to contain deeply-stained nuclei, rounded or oval in shape, and of definite outline. They are situated at the periphery of the protoplasmic mass which forms an area of almost structureless tissue, resembling the protoplasm of the giant cell in tubercle. This protoplasm contains vacuoles, and probably has its origin in the coagulated secretion from the interior of the pseudo-mucinous cells.

The connective-tissue shows colloid degeneration, its nuclei being swollen and staining faintly.

In Figs. 4 and 5, scattered through the connective-tissue fibres are large flat cells occurring singly or fused together in groups of two or three, which form an irregular mass of protoplasm with several nuclei. We find the connective-tissue cells pushed aside, and thus they become arranged around these large cells. Some of these groups of cells contain vacuoles, in other portions there is a central space surrounded by a ring of granular protoplasm with large oval nuclei in its substance, while in places this ring encloses a central disc of protoplasm with or without nuclei. This disc with its ring of cells resembles the primordial follicle with its ovum. The ring of protoplasm is formed from the degenerated cells, the walls of which have disappeared, the central disc consisting of cell débris and pseudo-mucin secretion. Single large cells are scattered through the connective-tissue almost giant-like in size; in places the cell contents have fallen out, leaving a vacuole rounded in outline and having small oval nuclei in its walls. These clear cell outlines somewhat resemble the so-called cancer bodies.

In Fig. 5 we see a ring-like arrangement of cells. In the centre are cells similar to those seen lying free in the cavities of pseudo-mucinous cysts. The cells are swollen, and have a distal nucleus and granular protoplasm. The formation of a daughter growth is seen in this figure. This smaller ring in turn becomes cut off by the connective-tissue, and so we see the rings scattered throughout the whole tumour. The arrangement of the cells in follicle-like form may be due to wandering pseudo-mucinous cells which in the process of cell secretion form a mass of pseudo-mucin, the cells being driven towards the periphery of the secretion mass by means of some centrifugal force, or it may be possible that these so-called giant cells are formed from the existing connective-tissue cells by some malignant influence which in certain organs has a tendency to imitate the glandular arrangement pre-existing there, the follicles in the case of the ovary taking the place of glands.

In all the solid tumours examined this follicle-like arrangement was found, although in some it was not well defined; it could on careful examination be traced through some portion of the tumour, sometimes half of the follicle being distinguishable or only a few cells, the remaining portion having disappeared by means of degenerative processes. If absent in the larger growth it could always be traced in the earlier stage of the disease in the opposite or smaller ovary.

Objective $^{1}/_{12}$ oil. im.
Ocular 6.

FIG. IV.

A = fusion of cells forming mass of protoplasm.

Objective $^{1}/_{12}$ oil. im.
Ocular 6.

FIG. V.

P = Disc of protoplasm.
C = Cells swollen with pseudo-mucin, free in centre of cyst.
D = Daughter cyst.

Objective $^{1}/_{12}$ oil. im.
Ocular 6.

FIG. VI.

Surface of tumour, epithelial tongues running into its substance.

Objective $\frac{1}{6}$.
Ocular 6.

FIG. VII.

Erosion of capsule, tongues of epithelium running up to the surface.

Scattered through the stroma are large cells filled with pseudo-mucin and granular protoplasm, and these may have had their origin in the follicle-like masses of cells. These large cells are also seen in some of the lymphatic spaces, the endothelium of these spaces being unaffected. In other portions of these tumours the epithelial cell arrangement varies. Long columns or tongues are seen invading the stroma. The nuclei are polymorphous in character, the nuclear protoplasm being granular. Karyokinetic figures are seen in some of these nuclei. The cell protoplasm is hyaline in places with numerous vacuoles, the connective-tissue cells staining faintly with hæmatoxylin; necrotic areas are also seen.

On examination of portions of tissue from the surface of the tumour we notice that as a rule the pseudo-germ epithelium is absent, or, as mentioned before, has become endothelial in type, forming the dense and thickened tunica albuginea. In order to prove the theory that these cancerous growths originate from the surface epithelium we must show direct communication between this epithelium and that in the interior of the tumour. This proof was forthcoming in three of the tumours examined.

The section in Fig. 6 was taken from a tumour which under the microscope showed alveolar carcinoma. On the surface of the greater portion the epithelium was not to be found, a dense fibrous band enclosing the tumour, with erosin and necrosis of the tissue in places. In a few places the surface epithelium was found as a row of large, swollen, rounded or cuboidal cells with central granular nucleus and nucleoli. Some of these cells were of very large size. Running down from this layer were columns of similar cells and also single cells completely surrounded by young connective-tissue. These columns had no definite direction and resembled in every respect those seen further in the interior of the tumour.

In another specimen of a similar character these superficial cells were found to be heaped up in the form of papillæ. The masses of epithelium in the tumour substance closely resembled these superficial cells. Here we have proof of the direct origin of the growth from the surface epithelium both as outgrowths on the surface and as in-growths into the substance of the tumour. The pseudo germinal epithelium seems to take on the power attributed by Waldeyer to the germinal epithelium, that is, the power of burrowing among the stroma and forming follicle-like bodies—a reversion to an embryonic type.

In Fig. 7 we see almost a similar condition to that in Fig. 6, but yet in some respects different. The tumour capsule was intact over

almost the whole surface; at some places there was erosion with proliferation of the cells. This section is to show the condition. The capsule has become eroded, there being left ragged fibres of connective-tissue, and tongues of epithelium are found quite close to the surface.

In a section taken from the surface of a small ovary, equal in size to an orange, which had the appearance of being composed of dense fibrous tissue, typical adeno-carcinomatous areas were seen in the deeper portions; nearer the surface a papillary arrangement was found. The surface epithelium was found to dip down into pits and furrows enclosing areas of connective-tissue; this epithelium by proliferation forms masses on the surface and in the interior of these processes. Thus we have the papillary formation involving the whole tumour, the fusion of portions forming gland-like inclusions. Here also we have evidence of origin from the surface epithelium.

There has been much confusion in the differentiation of these papillary tumours in the ovary, and the subject is too vast to enter upon here. It may be that these tumours differ not in origin, but in their mode of growth from the glandular structures—in the one the tissue consisting of connective-tissue processes covered by epithelium, and in the glandular the inclusion of epithelium in the stroma.

In the condition found on examination of the ovary drawn in Fig. 1 the tumour showed mainly a cystic formation; the solid portion was composed of masses of epithelial cells having a papillary arrangement. In the smaller ovary the masses contained cells of a more squamous type and without any definite arrangement. (See Fig. 8.) With one exception ova or corpora lutea were found in none of these specimens. In this tumour—that of a small ovary of one side with large cancerous tumour of the opposite—a corpus luteum was found in the midst of the cancer tissue. The lutein cells showed a granular condition, but were not involved in the malignant growth. In this case the patient had menstruated up to the time of operation. It appears therefore that the ova with their Graäfian follicles are the first to disappear in the degeneration of these malignant growths. This agrees with the theory that the ova early succumb to any serious inflammatory invasion of the ovarian tissue. The disappearance of the follicles may be due to the change of their cells into those of cancer cells. There was no evidence present of any thyroid-like structures among these tumour tissues.

Objective $\frac{1}{6}$.
Ocular 6.

FIG. VIII.

Masses of flat epithelial cells with ill-defined cell walls.

K = Karyokinetic figures.

Conclusions.

I. Clinical.

From the *clinical* standpoint, therefore, we may point out with regard to primary carcinoma of the ovary:—

(*a*) That it occurs as a rule at or near the menopause, although found in patients of 24, 25 and 29 respectively;

(*b*) That it has a marked influence on menstruation, tending to cause cessation of the periods;

(*c*) That previous pregnancies have little or no influence, the disease being almost as frequent among nulliparous as among multiparous patients;

(*d*) That pain is not a marked symptom, patients seeking advice for the relief of the abdominal swelling with its concomitant symptoms.

(*e*) That ascites is present in most cases.

(*f*) That metastatic growths depend upon the duration of the disease and the integrity of the tumour capsule;

(*g*) That recurrence is probable;

(*h*) That there is often little or nothing to suggest the diagnosis of malignancy;

(*i*) That the mortality is high.

II. Pathological.

(*a*) Most frequently both ovaries are affected, the one showing a more advanced condition than the other.

(*b*) In the early stage the capsule is firm, being composed of fibrous tissue; later on it becomes friable, and the tumour tissue forms surface proliferations.

(*c*) The superficial or pseudo-germinal epithelium is not usually found.

(*d*) Ova, Graäfian follicles and corpora lutea are as a rule not present.

(*e*) Evidence of previous pathological but benign changes has been found in most specimens.

(*f*) The carcinomatous growth is best found in the thickened portions of the cyst-walls and in the cortex and furrows of the solid forms.

(*g*) The epithelial cells are derived from the cells lining the follicles and from the cells derived from the germ epithelium.

(*h*) The so-called ova are degenerated masses of protoplasm; they are retrogressive products of the follicle cells which have undergone pseudo-mucinous and colloid degeneration.

(*i*) Karyokinesis is present, but is not a marked feature of these tumours.

(*j*) The cells resemble those found in the benign pathological growths, but differ in their distribution and irregular arrangement and in the amount of proliferation.

The point of interest in the examination of these specimens is as to the origin of the epithelial cell masses. It has been seen that the follicles and the surface epithelium are the main sources of their origin.

On reasoning back from the origin of the follicle cells from connective-tissue we are faced with the question: If these connective-tissue cells in the embryo can under the influence of the germ cell or ovum take on the characters of epithelial cells, why cannot the cells of this tissue take on a similar character when exposed to the influence of cells which have imitated the characters of these germ-cells, that is, the cells of the pseudo-germinal or surface epithelium? We have therefore before us the possibility of a mesoblastic as well as an epiblastic origin for cancer cell tissue. It does not seem probable that these cells lying among the connective-tissue fibres should suddenly take on a rapid growth after lying latent from fœtal life, according to the old theory of carcinoma having its origin in embryonic remains.

BIBLIOGRAPHY.

1. Dartigues. "Des tumeurs solides de l'ovaire." *Revue de Gyn. et de Chir. Abd.*, Vol. iii., 1899.
2. Bland-Sutton. "A Clinical Lecture on Secondary (Metastatic) Carcinoma of the Ovaries," Middlesex Hospital. *Brit. Med. Journ.*, May 26, 1906.
3. Cuthbert Lockyer. "Primary Carcinoma of both Ovaries." *Trans. Obstet. Soc., London*, Vol. xlvi., 1905.
4. Orthmann. "Handbook of Gynæcological Pathology." Trans. by C. H. Roberts, 1904.
5. Gebhard. "Pathologische Anatomie der weiblichen Sexualorgane," 1899.
6. Staeckel. Martin's "Krankheiten der Eierstöcke," 1899.
7. Pfannenstiel. (*a*) Veit's "Handbuch der Gynäkologie," 1898.
   (*b*) "Ueber die Pseudomucine der cystichen Ovariengeschwülste." *Archiv f. Gyn.*, Band xxxviii.
8. Winter. "Gynäkologische Diagnostik," 1896.
9. Heinrichs. Martin's "Krankheiten der Eierstöcke," 1899.

10. Virchow. "Das Eierstocks Colloid." *Verh. d Ges. f. Geburt., in Berlin.* Bd. iii., 1848.
11. Förster. Quoted by Whitridge Williams.
12. Pflüger. "Uber die Eierstöcke der Säugenthiere und des Menschen," 1863.
13. Wilson Fox. "Cystic Tumours of the Ovary." *Med. Chir. Trans.*, Vol. xlvii.
14. Mayweg. Quoted by Whitridge Williams.
15. Waldeyer. (*a*) "Eierstock und Ei," 1870.
(*b*) "Die epithelialen Eierstocksgeschwülste, insbesondere die Kystome." *Archiv f. Gyn.*, Band i.
16. Balfour. "The Structure and Development of the Vertebrate Ovary." *The Quarterly Journ. of Microscopical Science*, Vol. xviii.
17. Foulis. "Development of Ova in Man and other Mammalia." *Journ. of Anat. and Phys.*, Vol. xiii., 1879.
18. Alban Doran. "Tumours of the Ovary, Fallopian Tubes and Broad Ligament," 1884.
19. Acconci. "Beitrag zur Histologie und Histogenese der papillenführenden Kystome des Ovariums." *Centralbl. f. Allgem. Pathol.*, No. 23, 1890.
20. Whitridge Williams. "Contributions to the Histogenesis of the Papillary Cystomata of the Ovary." *Bulletin of the Johns Hopkins Hosp.*, Vol. ii., No. 18, 1891.
21. Emanuel. "Ueber maligne Ovarialtumoren mit Bildung von Primordialeiern." *Zeits. f. Geb. u. Gyn.*, Band xxvii.
22. Kossmann. "Zur Pathologie der Urnierenreste des Weibes." *Monats. f. Geb. u. Gyn.*, Band i.
23. Von Kahlden. (*a*) "Ueber die Enstehung einfacher Ovarialcysten, &c." *Zeigler's Beiträge zur pathol. Anatomie.*, Bd. xxvii. and xxxiii.
(*b*) *Centralbl. f. Allgem. Path.*, etc., Bd. vi., No. 7.
24. Delaunay et Pilliet. *Bull. Soc. Anat.*, Paris, 1898, No. 11.
25. Wendeler. Martin's "Krankheiten der Eierstöcke," etc.
26. Hauseman. Quoted by Liepmann.
27. Schröder. *Archiv f. Gyn.*, Band lxiv.
28. Gottschalk. "Folliculoma Malignum Ovarii." *Archiv f. Gyn.*, Band lix.
29. Lönnberg. "Carcinoma Folliculoides." *Nordiskt Medizinskt Arkiv.*, 1891.
30. Voigt. "Ueber Carcinoma Folliculoides Ovarii." *Archiv f. Gyn.*, Band lxx., 1903.
31. Liepmann. "Ueber Eibildung in Carcinoma des Ovariums." *Zeits. Geburt. u. Gyn.*, Band lii., 1905.
32. Stevens. The Fate of the Ovum and Graäfian Follicle in Præ-Menstrual Life." *Journal of Obstet. and Gynæcol. of the Brit. Empire*, Vol. v.
33. Farmer. "Observations on the Nature of Cancerous Growths." *Nature*, February 4th, 1904.
34. Reid. "Riserche microscopiche fatte dal professore Thomas Reid di Glasgow sulla presenza fra gli epiteli di elementi cellulari connettivali." *Giornale della Reale Accademia di Medicina di Torino*, 1904.

SELECT CLINICAL REPORTS.

(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class.)

I.

Two Cases of Uræmia during Pregnancy: Complete Suppression of Urine in One (Fatal), and Partial Suppression in the other—Cases of Eclampsia without Fits (?).

By Robert Jardine, M.D., F.R.S.E., etc.,

Professor of Midwifery, St. Mungo's College; Senior Physician to the Glasgow Maternity Hospital.

Case I. Mrs. McA., primigravida, æt. 22, about 7 months pregnant, was admitted to the Glasgow Maternity Hospital on March 14th, 1906, at 9-20 p.m., transferred from the Royal Infirmary after being there only for a few hours.

On admission the patient was conscious, but very restless, and frequently asked for a drink. Her right arm was quite limp; the pupils were equal, active, and normal in size. The pulse was 132, and very weak; the heart sounds were pure. There was some œdema of the legs, and also of the lungs. The uterus was about the size of a 7 months' pregnancy, and was firm. The os admitted a finger, and the breech could be felt. No fœtal heart sounds could be heard.

The patient was not able to give an account of her condition previous to admission, but her husband stated that for three months there had been swelling of the legs, and the patient had not been fit for her housework. During the past two weeks she had complained of headache and dizziness at times. There had not been any convulsions, but the husband stated that he had noticed twitchings of the face just before the patient had been taken to the Royal Infirmary.

A pint of saline infusion was at once given under the breast; a dose of sulphate of magnesia and 3 minims of croton oil were given by the mouth; $^1/_{30}$ gr. of strychnine was administered hypodermically,

and ½ a fluid ounce of brandy was ordered to be given by the mouth every three hours. There was a fluid motion of the bowels, but no urine was passed, nor could any be obtained by catheter, with the exception of half a fluid ounce at the time of admission. This contained a few granular casts, and was heavily loaded with albumen. The œdema of the lungs became more marked, and, in spite of free stimulation, the pulse grew weaker and became very irregular. The patient died ten hours after admission. No post mortem examination could be obtained. We were unable to ascertain how long the suppression of urine had lasted.

Case II. Mrs. P., primigravida, æt. 37, about six and a half months pregnant.

This patient was seen by me in consultation with Dr. Clow, to whom I am indebted for the following careful notes:—

There had been nothing unusual in the early months of the pregnancy, but on the 7th of April, 1906, slight bleeding had commenced. The patient was kept in bed for three weeks, and there was a slight "show" of blood all this time. About May 1st swelling of the legs began, and slight swelling of the hands and face. By May 5th the swelling had increased, but a careful examination of the urine gave no trace of albumen. Seven days later, when the urine was again examined, it was found to be loaded with albumen, and to contain abundant tube-casts but no blood. The swelling of the legs had somewhat increased. The patient had vomited once during the week, and there had been occasional headaches. On May 14th the albumen amounted to twelve per 1000, Esbach, and on the 16th to nine. The patient was taking a diuretic, and the bowels were being kept open.

May 16th. After interviewing a new maid the patient became very excited and complained of violent headache. About 8 p.m. she became delirious, and apparently quite blind. Dr. Clow at once opened a vein in her arm, and withdrew 20 fluid ounces of blood. There was immediate improvement of the sight and of the mental condition, and lessening of the headache.

May 17th. During the night there was much wandering, and the patient vomited seven times. In the morning she was still wandering, and did not know anybody. No urine had been passed since 10 p.m. on the 16th. The patient vomited about 11 a.m. She was put into a hot pack in the afternoon. I saw her about 5 p.m. She was very restless, and continually muttering words which I could not understand. She repeated the same words again and again, and would not reply when spoken to. Her pulse was quick,

but of good volume though somewhat tense. No urine had been passed for 17 hours.

We decided to give a saline infusion, and then deliver her by accouchement forcé. Thirty fluid ounces of saline solution (acetate and chloride of sodium) were injected under the right breast. Twelve fluid ounces of urine were obtained by catheter. The os was quite closed, but I was able to force one finger through, and I then found we had to deal with a case of lateral placenta prævia, as the edge of the placenta was at the internal os. Bossi's 4-pronged dilator was used, first without, and finally with the caps on. In half an hour the os was half dilated. I then did bipolar version and brought a foot down. The body of the child came through readily, but the head was gripped by the cervix. The child was alive, but too premature to live. Its movements soon ceased, and to save time and lessen the risk of tearing the cervix, I perforated the after-coming head, and delivered quickly. The placenta came away at once, and the uterus retracted well. An intra-uterine douche was then given. There was not much blood lost, and the cervix was not torn. The patient took the chloroform well, and did not seem to suffer from shock. Three hours later she was still wandering, and her temperature was 100°F. A dose of sulphate of magnesia was administered.

May 18th. Twenty-four fluid ounces of urine were drawn off by catheter in the morning. During the night 3 ounces of sulphate of magnesia and about 4 pints of fluid had been given, but the bowels did not act until an enema was administered. The patient had rested fairly well, but had rambled at times. In the evening 36 fluid ounces of urine were drawn off by catheter, and some had been passed involuntarily. The patient was much quieter, and had ceased to ramble, but apparently did not know anybody.

May 19th. Ninety-one fluid ounces of urine were drawn off. The albumen had markedly decreased. The mental condition had almost cleared up, but there was still a slight hesitancy in pronouncing some words. The sight was still impaired. The dropsy of the legs had gone. The patient was passing her urine naturally.

May 20th. Sixty-nine fluid ounces of urine were passed. An ophthalmoscopic examination of the eyes showed that the discs were rather obscured and redder than normal, and there was a suspicion of slight optic neuritis. The patient was feeling well.

May 31st. The patient has steadily improved, and there is only a trace of albumen in the urine.

These two cases had very much in common. In both the kidneys were at fault; in the first there was complete suppression of urine for the ten hours the patient was in the Hospital, and for how much longer it is impossible to say; in the second the suppression was only partial, as 12 fluid ounces of urine were excreted in 17 hours. In both the urine was heavily loaded with albumen, and tube-casts were present. In the first there was considerable œdema of the lungs, but none in the second. Undoubtedly there was uræmic poisoning in both. To all intents and purposes the cases were typical instances of eclampsia without any fits—the play of "Hamlet" with Hamlet left out. The absence of fits is a very remarkable feature and one which I am quite unable to explain.

I think that Dr. Clow's promptness in bleeding his patient had a good deal to do with the final happy result, but I am also firmly convinced that the emptying of the uterus was the proper line of treatment. In the first case the patient was too far gone for this to have been done with any hope of success.

II.

Three Cases of Pregnancy Complicated by Procidentia Uteri, with Remarks on the Treatment of that Condition.

By Ralph Worrall, M.D., M.Ch., R.U.I.,
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Pregnancy complicated by procidentia uteri is a rare condition, and the references to it in the latest text-books are very scanty. This is especially so as regards treatment, which is generally described as being best carried out by means of the pessary, pad, or tightly-drawn diaper. In recommending pessaries no reference is made in any of the books to modern researches into the bacteriology of the vagina and the facility with which the normal, non-pathogenic bacteria of the vagina become pathogenic in the presence of any obstacle to the natural drainage of secretion. That pessaries constitute such an obstacle cannot be denied, and I therefore contend that the operative treatment adopted in the appended cases, Nos. ii. and iii., should be substituted for this mode of treatment. In all the three cases which I give, the prolapse of the uterus had existed prior to the occurrence of pregnancy, and was due to the neglect of injuries of the cervix and pelvic floor, a neglect which is only too common.

While pregnancy frequently cures a prolapse for the time, it may on the other hand aggravate the condition, as in these cases; so that it is not wise to prophesy, as is often done, that pregnancy will exert a benign effect upon these lesions.

The importance of procidentia in the pregnant state is only too clearly shown by the death directly due to it (Case No. i.), while the patient in Case No. ii. narrowly escaped the unnecessary loss of her uterus from *Furor operativus*.

Case i. B.A., a secundipara, æt. 32, was seen in consultation on the 6th day of the puerperium. She was moribund from septic infection due to a gangrenous, sloughing cervix which protruded from the vulva and was equal in size to a small saucer. The history was that the womb had been "falling" for two years, and that the condition had become much worse since the commencement of the last pregnancy. At the labour dilatation had taken place with the cervix outside the vulva, so that the child had been born without having come into contact with the vagina. The consequent

pressure on the cervix had been so great as to destroy its vitality, and had resulted in the gangrene and sepsis from which the patient died forty-eight hours after I saw her.

Case II. A.M., a secundigravida, æt. 30, was last confined five years ago. She is now three months pregnant. Her womb has come outside for the past two months. She saw another surgeon two weeks ago, who recommended abdominal section and removal of the womb.

She is well nourished; there is partial rupture of the perineum; the cervix is lacerated, greatly swollen and congested, and protrudes from the vulva. The uterus is enlarged to a size corresponding to about three and a half months' pregnancy. After a week's rest in bed, the cervix was amputated, and anterior kolporrhaphy and kolpo-perineorrhaphy were performed.

There was no reaction or interruption of pregnancy. Labour came on at the normal time. The medical attendant reported that it was quite natural, and that he had sutured a slight rupture of the new pelvic floor; also that convalescence was easy.

Case III. L.S., a secundigravida, æt. 27, was last confined fourteen months ago. She is now five months pregnant; the womb has come outside for about four years past, and to a greater degree since the commencement of this pregnancy. She has worn pessaries without effect.

The patient is a stout woman. Her uterus is enlarged to a size corresponding to about five months' pregnancy. The cervix uteri is greatly hypertrophied and much eroded; it protrudes from the vulva for nearly three inches. After a short rest in bed and the application of solution of silver nitrate and powdered iodoform to the friction ulcers, the cervix was amputated, and anterior kolporrhaphy, posterior kolporrhaphy and perineorrhaphy were done at the same sitting.

No reaction followed; all the wounds healed by the first intention; there was no interruption of the pregnancy, or any further trouble with the prolapse, although the patient worked hard up to the time of her confinement.

Seen three months after delivery, the perineum was found to have been torn through again, but there was no prolapse. The patient said her medical attendant did not suture the rent at the time, although, at my request, she had specially engaged a doctor in order that this might be done. She was recommended to come into the Hospital to have the pelvic floor again restored and Alexander's operation performed for a retro-displacement of the uterus.

III.

Vaginal Hysterectomy for Irreducible Inversion of the Uterus, of Puerperal Origin.

By James Haig Ferguson, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E.,
Assistant Gynæcologist, Royal Infirmary, Edinburgh; and Gynæcologist to Leith Hospital.

Mrs. X., a primipara, æt. 32, had enjoyed fairly good health with the exception of having suffered from time to time from dyspepsia and ulceration of the stomach, with hæmatemesis.

She had never suffered from any uterine trouble or discomfort, leucorrhœa having been her only abnormal pelvic symptom. Her last menstruation was on the 14th of June, 1905, and she was confined of her first child on the 23rd of March, 1906.

During her pregnancy she was much troubled with heart-burn, took very little food, and suffered greatly from sickness; otherwise the course of the pregnancy was uneventful.

Labour began on the 23rd of March; it was slow and tedious, the presentation being a vertex in the right occipito-posterior position.

When the cervix had become fully dilated, chloroform was administered, and the child, a male, delivered easily with forceps as a persistent occipito-posterior case.

Twenty minutes after the birth of the child the placenta had not come away, but it was easily delivered by supra-pubic pressure, the uterus contracting and retracting satisfactorily. There was a slight perinæal tear, necessitating one stitch. There was no abnormal hæmorrhage or discomfort of any kind, and the patient made an uninterrupted recovery. She did not suckle the child.

She was kept in bed for a fortnight, and resumed her duties at the end of the third week, feeling absolutely well. During the next three weeks she performed her household duties with her accustomed energy and with pleasure. Her attention was then drawn for the first time to a considerable red vaginal discharge. On enquiry it was found that she had had a slight coloured discharge off and on since her confinement, but she had thought nothing of this, especially as she had absolutely no discomfort, and felt otherwise well. When at the end of six weeks this discharge suddenly increased she concluded that it was the return of menstruation. As the bleeding,

however, tended to increase rather than diminish at the end of a week, she considered it advisable to send for her doctor, who, on examination, found her to be suffering from inversion of the uterus. In conjunction with his colleague, he endeavoured, under an anæsthetic, to reduce the inversion, but failed to do so, the patient bleeding very freely as a result of the attempt.

I saw the patient in consultation with her doctor on the 25th of May, a little over two months from the date of her confinement, and confirmed his diagnosis of inversion.

She was so sensitive that, before an examination was possible, she had to be anæsthetised, when the condition was readily made out, all the usual physical signs being present. A careful attempt at reduction, though continued for a considerable time, was without result. In consequence of the free hæmorrhage which ensued, I considered further attempts inadvisable. I therefore plugged the vagina firmly with iodoform gauze to try the effect of continuous pressure and, at the same time, to arrest the hæmorrhage. A repositor seemed to me to be absolutely contra-indicated on account of the hæmorrhage which resulted from even the slightest pressure on the inverted fundus.

The patient's condition was so urgent that I advised her removal to a nursing home the same evening, and this was accordingly done by means of an ambulance waggon. On admission she was exceedingly pale and exsanguine, having already lost a large quantity of blood.

She had a weak pulse of 100, and a temperature of 99·2°F.; she looked very fragile, and was obviously suffering from shock. The hæmorrhage was free, although kept in check by vaginal plugs of iodoform gauze, and she complained of considerable pain from the vaginal plugs.

On the following morning, May 26th, the patient was again chloroformed and placed upon the operating table in the lithotomy position. On removing the gauze from the vagina a smooth pyriform tumour was felt occupying about three-fourths of the vaginal cavity. It bled freely when handled. The cervical ring could be felt high up at the vaginal vault, and bi-manually the cup-shaped depression could be palpated with ease through the abdominal wall.

On inspection, aided by the speculum, the inverted uterus could be seen, red, congested, and bleeding even on the gentlest touch. The mucosa was not actually ulcerated, but showed ecchymosed patches. The orifices of both Fallopian tubes could be seen.

The vagina was thoroughly cleansed with antiseptic douches, and

every possible device for effecting reduction was attempted. One disadvantage to be contended with was the absence, owing to the completeness of the inversion, of a sufficient amount of cervical tissue, thus making cervical traction impossible. It was impossible to continue these manipulations on account of the persistent hæmorrhage.

I then made an incision into the posterior fornix, opening into the pouch of Douglas. The index finger of the left hand was passed through the pouch of Douglas into the inverted cup, when the constriction ring was found to be very unyielding (see Fig. I.). The whole uterus was then pushed outside the vagina, and simultaneous efforts were made to stretch the constricting ring and replace the uterus. This method likewise proved unsuccessful.

I next incised the posterior uterine wall in the middle line, according to the method of Küstner, the incision extending through the mucous membrane and muscular wall of the uterus down to, but not through the peritoneum. But even with this, reduction was impossible and the uterus seemed in danger of being torn in the attempt.

The only alternative left, therefore, was vaginal hysterectomy, which I accordingly performed at once, using clamps for the sake of speed. The ovaries were removed with the uterus; one of them was cystic and as large as a small plum, and was ruptured in the course of removal; the other was adherent at the neck of the funnel. A small sub-peritoneal fibroid was also found to be occupying the entrance to the inversion (see Fig. III.).

The patient, after the operation, was collapsed, and suffered from shock, the result chiefly of her previous loss of blood. For the first four days her pulse remained weak and somewhat rapid. After this, however, she made an uneventful recovery, was discharged on June 18th, and is at present in perfect health.

This case is of unusual interest for the following reasons:—

1. The obscurity of the etiology:—There must have been at the end of the third stage a partial inversion of the uterus, possibly due to a fundal implantation of the placenta with atony of the placental site, and the inversion must have gradually increased, without symptoms, during the six weeks following labour.

2. The circumstances under which the accident occurred:—The labour was conducted with the utmost care by two skilled and experienced obstetricians, one of whom visited the patient regularly for three weeks after her confinement. No blame can therefore be

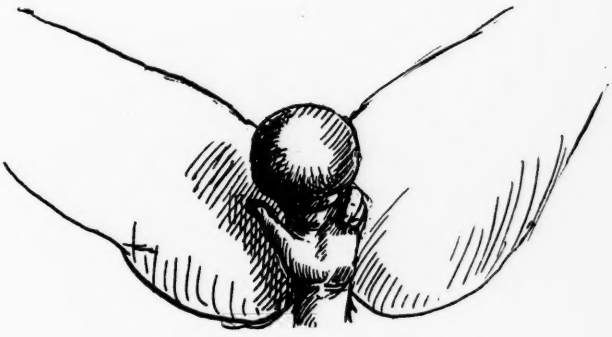

FIG. I.

Fingers of left hand passed through opening in posterior fornix, attempting to dilate neck of sac. Note the inverted uterus entirely outside vulva.

FIG. II.

Showing Küstner's incision through posterior uterine wall extending through mucous and muscular coats.

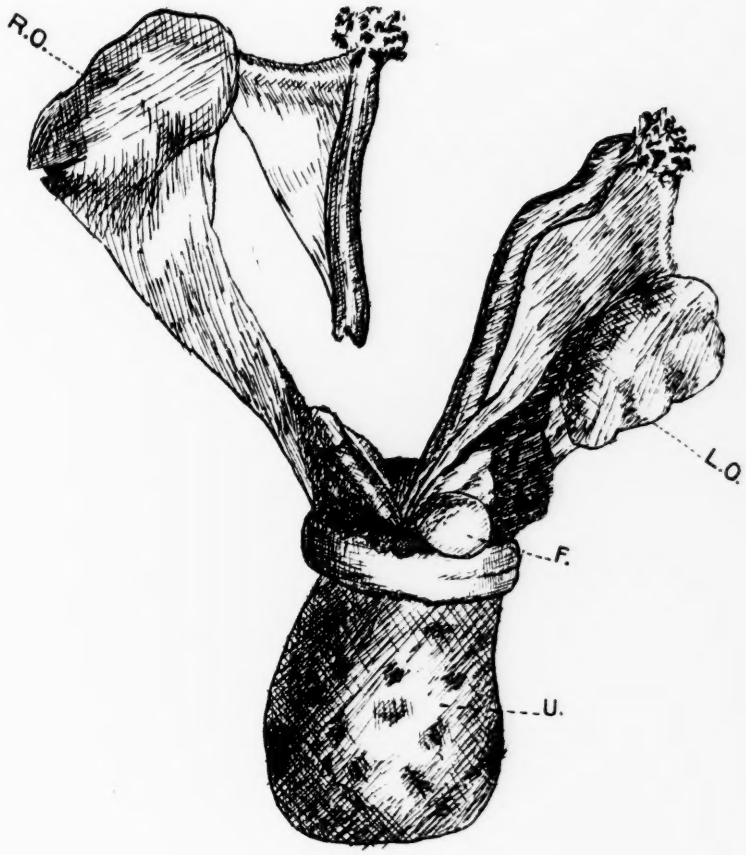

FIG. III.

Drawing of specimen after removal.

R.O. = Right ovary, with collapsed cyst about the size of a plum.

L.O. = Left ovary.

F. = Small sub-peritoneal fibroid occupying entrance to inverted uterus.

U. = Inverted uterus, showing softened areas.

attached to those who had the management of the case. This complication might evidently happen to anyone.

3. The insidious fashion in which the condition arose:—There was nothing to indicate the onset and development of such a grave complication. The patient was performing her usual household duties, feeling in the best of health, until the sixth week after her confinement, when hæmorrhage, the first and only symptom, showed itself, and there was never any bearing down or other pelvic pain.

4. The difficulties in the way of treatment:—When I first saw the patient her condition was critical on account of the alarming loss of blood which she had sustained. Attempts at manual reposition encouraged fresh and copious bleeding which she was ill able to stand. The uterine wall was so friable and œdematous that any great pressure would have lacerated it, and one was in constant dread of the manipulating fingers perforating the uterus. There were scattered sodden areas which one could only compare, in consistence, to wet blotting-paper. For these reasons also a repositor was obviously contra-indicated.

The stages leading up to the final hysterectomy were:—

(*a*) Manual reposition:—This was impossible for the above-mentioned reasons.

(*b*) Opening into the posterior fornix and attempting digital dilatation of the neck of the sac, combined with a further careful attempt at re-inversion:—This was done so that, in the event of failure, Küstner's method might be possible.

(*c*) Küstner's operation:—This failed on account of the friability of the uterus.

(*d*) Vaginal hysterectomy.

My reasons for not opening the abdomen and attempting instrumental dilatation of the constriction were that such attempts have not hitherto proved very successful.* Further, no advantage could, to my mind, be gained by opening the abdomen, while the risk to the patient would have been greatly increased.

From my experience of this case I am of opinion that the stages in the treatment above described follow a logical sequence, and that each stage is the natural sequel of its predecessor, culminating finally in vaginal hysterectomy, and I should have no hesitation in following the same course of procedure in future, under similar circumstances.

For the accompanying drawings I am indebted to Dr. McMaster, who, along with Dr. Graham, assisted me at the operation.

* I might state that instrumental dilatation of the constriction could, if desired, be as easily performed by the vaginal as by the abdominal route. (See Figs. 1 and 2.)

IV.

Abdominal Hysterectomy for Inversion of the Uterus, Fatty Degeneration of the Inverted Portion*.

By A. H. Freeland Barbour, M.D.,

Lecturer in Gynæcology, University of Edinburgh.

While changes in the mucous membrane of the inverted uterus have been fully described, I can find no references to changes in the muscular wall. The following case is therefore worthy of record:—

Mrs. R., aged 37, a iii.-para, was admitted to Ward 35, on April 11th, 1905.

Two months before admission, the patient was delivered of a full-time child. The labour was difficult, and instruments were used, as they had been in the two previous labours. All three children were born dead. In her last labour the patient lost a considerable quantity of blood. She had no pain during the puerperium, but, for the first three days, she was unable to pass urine, and it was not drawn off until the third day. When the doctor was doing this he informed her that the "womb was down." She herself did not notice anything wrong. Six weeks after her confinement she was informed that the "womb was inside out." During the time previous to admission she felt nothing specially wrong. There had been no hæmorrhage.

On admission, vaginal examination showed the pelvis to be justo-minor. In the vagina was a mass, equal to the size of a golf ball, rounded and smooth except at a few points where there was irregularity on the surface. No cervix could be felt. On bimanual examination under chloroform no fundus could be felt above the pubes, and the sound could not be passed up alongside the mass. An attempt was made to replace the fundus by pressure with the fingers in the vagina. This was partially successful, and then the cervix could be felt. It was fixed with volsellæ and pressure was again applied to the fundus, but no further reduction could be effected, and in two days the inverted uterus was projecting as before.

* Communicated to the Edinburgh Obstetrical Society, May 9, 1906.

Inverted Uterus split longitudinally. *a* = Exposed mucous surface. The extent of the fatty change in the wall is indicated at the fundus.

A week later the patient was again anæsthetized and the abdomen was opened. After she had been placed in the Trendelenburg position a cup-shaped depression was visible in the floor of the pelvis across which was a transverse slit with the tubes drawn into it. The posterior rim of the cup was incised through both thicknesses of the inverted wall. Pressure was now again exerted on the inverted fundus from the vagina, and the incision was continued downwards into the cup until the inversion was completely undone by pressure from below. There was very little hæmorrhage from the cut walls of the uterus. The uterus was now seen to be the seat of marked fatty degeneration, and it was determined to remove it. This was done by supravaginal-hysterectomy. One ovary was left.

After the operation the patient was extremely collapsed, and for the first twenty-four hours she suffered from severe shock, which was only controlled by frequent saline enemata. Her convalescence was slow, and was further retarded by an attack of shingles in the right thigh a week after operation. She was discharged well three weeks later.

The specimen (see drawing) consists of the uterus amputated above the cervix, together with the right tube and ovary. The posterior wall of the uterus is split from a point just below the fundus down to the level of amputation. This incision gapes when the uterus is in its normal state, but when the uterus is inverted (which it is readily), the edges of the incision remain in close apposition. When the uterus is thus inverted the ovary and fimbriated end of the tube remain outside the peritoneal cup.

The uterus measures 5·5 cm. in length. The circumference at the line of amputation, which corresponded to the constricting ring, is 5 cm., while the circumference at the widest part of the fundus touching both the tube corners is 12 cm. This accounts for the impossibility of manual reduction.

The exposed mucous surface is smooth and hard, is pale in colour and shows no hæmorrhages. The tube openings are visible and patent.

The peritoneal surface is thrown into longitudinal folds, and there is a deposit of fat visible under it, while the superficial layers of the muscular wall also have undergone fatty change.

Microscopic Examination of Uterine Wall. The exposed surface of the uterus is devoid of mucous membrane. On the surface is a condensed layer of fibrous tissue without any epithelial covering.

At places there is some débris of broken-down cells. There is no indication of the formation of a stratified squamous epithelium, such as has been described in some cases. No glands are present.

Under this free surface the muscle fibres are degenerated, the nuclear staining being faint. Between the fibres there are many small blood extravasations, some recent, others older and only represented by blood pigment. Beyond this area the muscle fibres are healthy to the depth of the line of large vessels in the uterine wall. On the peritoneal side of these, however, the fibres are extremely degenerated; nuclear staining is absent, and the protoplasm has undergone fatty change. This becomes more marked towards the peritoneal surface until immediately under it the muscle is entirely replaced by fat. The peritoneal coat is thickened in places by a deposit of lymph.

It is difficult to explain why the degeneration has especially affected the outer third of the muscular wall. Greater compression might cause such a change in the wall in the neighbourhood of the inversion ring; but this cause does not operate at the fundus in the bottom of the inverted cup.

This fatty degeneration of the uterine wall has an important bearing on the treatment of inversion.

Küstner was the first to advocate and carry out the operation of hysterectomy in the treatment of cases of inversion in which manual reposition failed. He operated by the vaginal route, gaining access to the peritoneal cavity by a transverse incision through the posterior fornix. The finger was then passed into the inversion cup, and the posterior uterine wall was divided longitudinally until the inversion could be undone. Piccoli also devised an operation along the same lines.

Dührssen operated also by the vaginal route, but incised the anterior fornix and split the anterior wall of the uterus. Other operators have followed him.

In 1901 Dr. Haultain described at the Edin. Obst. Society an operation which he had performed for a case of chronic inversion, in which he opened the abdomen and incised the posterior wall of the uterus. Dr. Haultain's method was followed in the case just recorded. He points out in his paper that the abdominal route has three advantages over the vaginal—(1) the incision in the uterus is reduced to a minimum; (2) traction on the round and broad ligaments may help

reposition; (3) the uterine wall can be more accurately sutured and hæmorrhage more efficiently controlled.

The present case adds a further argument for the abdominal route, for the fatty change here present, though it must be of rare occurrence, as I can find no references to it in the literature, would more easily escape notice in the vaginal operation.

The abdominal route allowed one to see plainly the condition of the uterine wall, and to decide on hysterectomy as being the best if not the only thing to be done. It is doubtful whether, with the walls in this condition, healing by first intention would have occurred. And even had it occurred, the degeneration of the uterine wall would have been a cause of ill-health, and might have produced complications in pregnancy.

REVIEW OF CURRENT LITERATURE.

OBSTETRICS.

Investigations on the Function of the Kidney during the Renal Affections of Pregnancy and Eclampsia.

BÜTTNER. *Arch. für Gynäk.* Bd. 79, Ht. 2, p. 421.

BÜTTNER, in an exhaustive paper, discusses the results of his investigations on the function of the kidney in renal affections occurring during pregnancy, and especially during eclampsia. He comes to the following conclusions:—The urines secreted by the so-called kidney of pregnancy, the urines secreted during labour under normal conditions and the urines secreted during the convulsion stage of eclampsia all bear the character of a certain renal inefficiency and cryoscopically show the characteristics of the urine secreted by an engorged kidney. But in the above conditions there is no engorged kidney; the only symptom in common is a poor renal circulation. During the stage of convulsions in eclampsia this defective circulation is brought about by a spasm of the renal vessels, and perhaps the same cause produces this condition in the kidney of pregnancy. A deficient circulation through the kidney has also been observed on cryoscopic examination in normal pregnancy. In many cases this only leads to œdema, in others to a definite lesion of the renal epithelium, *e.g.* to the kidney of pregnancy. The consequence of the inefficient renal circulation is the production of a low concentration of the secretions of the body so typical of pregnancy. Hence we cannot during pregnancy talk of inefficient kidneys which lead to œdema, neither can we apply the term to the kidney of pregnancy, because in each case the kidney adapts itself to the tendency of the body to put the concentration of its secretions on a lower level. Hence Büttner, in opposition to Koranyi, believes the kidney to be the most important apparatus in the regulation of osmosis.

The deficient circulation, however, may cause such serious disturbances in the nutrition of the kidney during the "kidney of pregnancy" and during eclampsia that a definite inefficiency sets in, the consequence of which is a considerable increase of the molecular blood-concentration. This is unimportant in the question of the

etiology of eclampsia. Eclampsia is not produced because the blood is loaded with uræmic matter. The fit most likely originates in a spasm of the arteries in the brain. It cannot as yet be assumed with certainty that this spasm is caused by a toxin which may also produce the morbid anatomical changes found in eclampsia.

H. T. Hicks.

Graves' Disease considered as a Manifestation of the Auto-intoxication of Pregnancy.

Audebert (J.). *Compt. Rend. de la Société d'Obstet., de Gynécol. and de Pœdiat. de Paris.* Tome viii. July, 1906.

After a short account of the usual symptoms associated with the hepatic toxæmia of pregnancy, the author suggests that possibly in some cases this condition may give rise to the signs and symptoms usually recognised as exophthalmic goître, and in support of his view records a case at considerable length.

The patient, a woman of 33, had been healthy and had had no nervous trouble, was pregnant for the second time, the first pregnancy having been practically normal. At about seven months, without having any tingling, headache, or vision trouble, the patient noticed a slight œdema of the legs. There was no albumen or sugar in the urine. The œdema increased, micturition became less frequent, the urine diminished in quantity, and her neck increased in size. She was put on a milk diet and improved somewhat for a short time. A slight trace of albumen was found in the urine at eight months. After this the patient became rapidly worse—the urine was greatly diminished in quantity, dyspnœa began to be urgent and the eyes to project. In spite of complete rest and strict milk diet, general anasarca involving the abdominal walls, upper limbs and face occurred. With brisk purgation there was slight improvement for a short time. She soon relapsed, however, and the author was called in. He found crepitation in both lungs, rapid, feeble pulse, orthopnœa, exophthalmos and dilatation of the pupils; coma supervened and the patient was then bled to the extent of 500 to 600 gr. Labour commenced and was finished by the help of forceps, a living child being born. After three days the patient began to improve, but the pulse remained rapid and small and there was a marked tremor of the upper limbs. The neck was generally enlarged and both the isthmus and lobes of the thyroid were found to be slightly increased in size. Thyroid treatment was ordered, but

without effect. The symptoms, however, slowly disappeared, under strict milk diet, until at the end of about six weeks, except for a rapid pulse, the patient was practically well and at the end of four months the increase in size of the thyroid, the exophthalmos and all the other symptoms had disappeared. The baby did well.

The author shortly discusses the question as to whether the case should be looked upon as one of true exophthalmic goître, occurring acutely under the influence of pregnancy and disappearing after labour or one of auto-intoxication of pregnancy giving rise to secondary symptoms similar to those of Graves' disease, and points out that the probability is that the latter is the correct view.

HAROLD CLIFFORD.

A Contribution on Pyelo-nephritis of Pregnancy.

ZICKEL. *Monats. für Geburts. und Gynäkol.* Bd. xxiii., Heft 6.

CASES of pyelo-nephritis commencing at the end of pregnancy are of sufficient rarity to make the following case of interest:—

The patient was 36 years old, pregnant for the second time, and at or about the end of the eighth month. She was admitted to Hospital because labour pains had commenced, and the urine examination showed no abnormal constituents. For seven days labour pains continued every 15—30 minutes. No effect was produced by them, and the internal os uteri did not open. Up to this time the patient had been quite well, but now she had a rigor, and the temperature rose. The only objective symptom to be found was pain in the right lower part of the abdomen, especially localized in the inguinal region. The next day there was another rigor, and labour commenced and was finished in a few hours. During the day there was another rigor, and the temperature rose to 104°F. The temperature kept up to about 104° for four days post partum, and then fell rapidly and remained normal. On the fourth day post partum a careful examination of the urine drawn off by catheter was made, and was found to contain albumen, pus, renal epithelium, hyaline and granular casts. A further examination of the patient also showed that the right kidney was much displaced, so that its upper border could be felt below the ribs. The kidney and renal pelvis were markedly tender on pressure, and very easy to palpate through the relaxed abdominal wall. Staphylococci and bacterium coli commune

were found in the urine; no tubercle bacilli. On a milk diet and urotropin the temperature fell rapidly to normal, and recovery was uninterrupted.

The interest of the case lies in the difficulty of diagnosis and the curious time of onset, so late in pregnancy. If the first rigor had occurred after labour instead of before the diagnosis of ordinary puerperal sepsis would have been in the highest degree probable; but coming before labour had really commenced and before rupture of the membranes, uterine infection was unlikely. On the other hand, the urine was absolutely normal seven days before the first rigor, and after this the symptoms did not coincide with the usual symptom complex of pyelo-nephritis. According to Opitz acute pyelo-nephritis of pregnancy is easy to diagnose, the usual symptoms being micturition disturbance, pain in the kidney region, and a typical temperature curve with morning remissions. The diagnosis at such a time of pregnancy is of considerable importance because the treatment of pyelo-nephritis on the one hand and of puerperal septic diseases on the other is so essentially different. As far as causation is concerned this case throws very little light. The common explanation is that kinking of the ureter with nephroptosis in connection with pressure of a pregnant uterus in some way predisposes to infection.

THOS. G. STEVENS.

Inflammation of Varicose Veins and Embolism during Pregnancy.

AUDEBERT and GILLES. *Compt. Rend. de la Société d'Obst., de Gynéc. and de Pœdiat. de Paris.* Tome viii. July, 1906.

THE authors describe an interesting and rare case of inflammation of varicose veins of the lower limbs followed first by an embolus in the right lung, about ten weeks later by one apparently in the right kidney.

The patient was pregnant for the third time, and during both previous pregnancies had suffered from varicose veins in the lower limbs, which had cleared up after delivery in both cases. When about six months pregnant the legs became painful and the patient went to hospital, where the veins of the left leg were found to be indurated and tender. With rest in bed, bandaging and fomentation there was considerable improvement. Shortly after getting up, however, she had an acute attack of pain in the epigastrium, accompanied by cold sweats, pallor and faintness. On examination signs

of embolism at the base of the right lung were found. The signs and symptoms gradually disappeared and the patient went home.

Ten weeks later the patient had another attack of pain and on this occasion everything pointed to the right kidney being the seat of the trouble. She again recovered and was delivered of a living child.

The authors give a short list of five somewhat similar cases that have been recorded.

HAROLD CLIFFORD.

Hebotomy (Pubiotomy): An Operation for the Enlargement of Contracted Pelvis.

BILL (ARTHUR H.). *Surgery, Gynæcology and Obstetrics*, July, 1906.

THE author states that this operation was first suggested by Gigli, an Italian, in 1894. It was first performed on a living subject by Bonardi, of Lugano, in May, 1897. Gigli had no opportunity of doing it himself until April, 1902, eight years after he had advised it. In 1903 Gigli was able to collect records of 12 favourable cases and 2 fatal cases, in both of which the patients had died of sepsis.

The operation first performed was an open one. The pubic bone was exposed by a large vertical incision and then sawn through. Döderlein has modified the technique so as to make the operation almost a subcutaneous one. Bumm has further modified it so that the operation he performs is a true subcutaneous one.

Döderlein's method of performing the operation is as follows:—A small incision is made along the upper border of the pubic bone, just internal to the tuberculum pubicum, and large enough to admit one finger. The index finger is then introduced behind the pubic bone, and the soft parts separated from it, to and around its lower border. Then a metal carrier with a suitable curve, and long enough to reach around the pubic bone, is passed along the finger as a guide, and brought out below, at a point just external to the labium majus, the direction of the carrier being in a vertical plane. Upon separation of the bone, the ends spring apart, as a rule, causing a considerable enlargement of the pelvis. If there is much bleeding it can easily be controlled by packing the wound. The child is delivered by forceps or version. The small incisions may be closed with one stitch. During the puerperium the patient is kept as quiet as possible, with sand bags at each side on a binder to support

the pelvis; but some operators, notably Van de Velde, use no support, thus favouring a slight separation of the bones and permanent enlargement of the pelvis. Bumm performs the operation subcutaneously by using a sharp pointed carrier which he passes through the skin and round the bone without making an incision, and without using the finger as a guide.

The author very fully discusses the risks of the operation and points out what muscles, ligaments, &c., are divided or interfered with. He also refers to experiments made by different observers to determine the changes in the various diameters of the pelvis after the operation, and gives the result of his own experiments, illustrated by skiagrams. In his experiments he attempted to apply a force from within the pelvis in the true conjugate by means of a turn-buckle to the extremity of which was attached a block of wood curved to correspond to the shape of the child's head. After the bone was sawn in the usual way the conjugate diameter was increased ½cm., 1cm., and 2 cm., and measurements of the other diameters as well as the amount of separation of the bones were taken for each degree of increase. The experiments were done on the bony pelvis with the ligaments attached, on the dissected pelvis with the soft parts *in situ*, and also on fresh cadavers. The bone was divided on the left side of the symphysis.

The following results were obtained:—

	c.m.	c.m.	c.m.	Max. possible. c.m.
Increase in true conjugate	1 ...	1·5 ...	2 ...	2·25
„ transverse diameter ...	0·5 ...	1·00 ...	2·50 ...	3·25
„ right oblique diameter ...	0·5 ...	0·75 ...	1 ...	1·5
„ left „ „ ...	0·75 ...	1·25 ...	2 ...	2·5
Separation of the bony surfaces ...	2·25 ...	4 ...	6 ...	7

The author points out that the enlargement, though not quite symmetrical, was by no means so one-sided as some writers have made out. The skiagrams confirm this. The greatest variation was in the oblique diameters, the left one being increased more than the right one, when the incision was made on the left side. More room was thus gained on the side opposite the cut than on the same side. This is the opposite of the finding of Tandler, who merely separated the ends of the bones, and found that the increase was almost entirely on the side on which the cut was made. In the skiagram showing the maximum increase of the C.V. 2·25 cm., both sacro-iliac joints are separated, slightly more on the side opposite the pubiotomy, but the ligaments are not torn in the least. The anterior ligaments are made tense and are elevated from the bone

along with the periosteum for about 1 to 1·5 cm. from the joint. Cauvenberghe has found that after 6 cm. separation of the bones these ligaments are often lacerated, but in some pelves even 8 cm. separation does not tear the ligaments.

Both Krömer and Sellheim, after careful experiments, have come to the conclusion that the enlargement of the pelvis after pubiotomy and symphysiotomy is the same. The latter has estimated the force required to cause the enlargement by means of a dynamometer, and has found that three times as much force is required after pubiotomy as after symphysiotomy.

In discussing the limits of the operation the author maintains that it is impossible to fix a definite limit in regard to the length of the conjugate, as the size of the head should always be taken into consideration. He believes that the biparietal diameter of the head can be accurately estimated by measuring the occipito-frontal diameter with an ordinary pelvimeter through the abdominal wall. The compressibility of the head must also be taken into account, and he thinks that in an average case $\frac{1}{2}$ cm. should be allowed for this. With a biparietal diameter of 9 cm., the limit of pelvic contraction would be 6·5 cm., in a flat pelvis, or somewhat more in a generally contracted pelvis. Seeligmann has successfully operated in a case with a diagonal conjugate of 8 cm., or a true conjugate of from 6 to $6\frac{1}{4}$ cm.

The author has collected records of 157 cases, with 8 deaths. There were no cases of American obstetricians. The author has thus had no practical experience of the operation. Five of the deaths were due to sepsis, all said to have been infected prior to the operation. One case died from chloroform, one from typhoid fever 25 days after the operation, and one four days after the operation from thrombosis of both ovarian veins extending as far as the renal veins. In view of these five deaths from septic infection it is somewhat remarkable that the author should give as an advantage of the operation over Cæsarian section, that "the fact that the peritoneal cavity is not opened and that the field of operation does not connect with the generative tract, allows of its being done in cases in which there is infection already present, or there is a suspicion of infection on account of examinations under doubtful asepsis." It is hardly likely that many of these 157 cases could have been in a septic condition when operated upon, and if 5 of them died it must mean a very high deathrate in such cases.

The following complications have followed the operation: hæma-

toma of the vulva, lacerations in the vaginal wall, injury to the bladder and thrombosis of the veins of the legs.

The author does not consider that the operation should supplant induction of premature labour for contracted pelvis, but he thinks the combination of the two methods may be made with advantage. Pfannenstiel has already suggested this, and cases have been reported by Reeb, Stöckel and Dührssen. Döderlein has suggested the performance of the operation, and then to await spontaneous birth, but the author considers this to be entirely unjustifiable.

The results for the children have not been so good as for the mothers. In a series of 23 cases in Leopold's clinic 4 of the children were lost.

The author considers that this operation is "destined to stamp as a thing of the past craniotomy upon the living child."

ROBERT JARDINE.

The Influence of Disinfecting the Vagina upon the Mortality during the Puerperium.

BAISCH (K.). *Arch. für Gynäk.* Bd. 79, Ht. 2, p. 325.

IN this paper Baisch discusses the value of antiseptic douching at the onset of labour. He had found that the statistics so far had been unsatisfactory and contradictory; whereas some authors observed a marked improvement since the introduction of antiseptic douching, others reported worse results than before, and attributed these bad results to the introduction of bacteria by the manipulating hand, which cannot be made absolutely sterile. This objection can be met by the use of sterilized india-rubber gloves, and in order to facilitate definite conclusions only those cases which are admitted into the maternity wards before the onset of labour should be included in the statistics. Any other abnormal conditions must also be eliminated so that only straightforward normal labour cases remain.

Both Döderlein and Bumm who have given a great deal of time to the study of this question agree that even after eliminating all abnormal cases, there still remain other uncontrollable accidents, such as the patient touching the genitals which may interfere with a clear picture. Extragenital diseases may cause a rise of temperature in the puerperium, these cases can be recognized by a bacteriological examination of the lochia. If they be found sterile, the cause of the rise of temperature must be looked for outside the genital system.

Baisch's experiments in Döderlein's Hospital were made with

gloved hands; all abnormal cases were eliminated, and bacteriological examination was made in feverish patients. Every lying-in woman had a bath and clean linen on admission. Before the initial internal examination was made, the hair on the pubes was cut short, the external genitals were washed for 5 minutes with warm soap and water, alcohol, and a solution of Hyd. Perchlor., and then rubbed over with Sublamin. Before every internal examination the sponging with Hyd. Perchlor. was repeated.

Among 1,000 cases examined during 1902—1905 five hundred had a douche of Sol. Hyd. Perchlor. 1—1000 (in addition to the external cleansing), the vulvo-vaginal opening being well separated by the gloved hand. The results were as follows:—Douched patients: 12·8% developed a rise of temperature; non-douched patients: 8% developed a rise of temperature; 127 of the undouched cases were not examined internally, and in 8·6% the temperature was raised. Hence examination with a gloved hand and no internal examination at all seem to give about the same results, which shows that the dangers of transmission of germs from the vulva is nil. Among all the 1,000 cases the cause of the rise of temperature was traced to accidental diseases in 2·8%, thus reducing the purely puerperal rises to:—Douched: 10·0%; non-douched: 5·2%. Of these 3·6% douched cases were ill, and 6·4% were unwell only; while 2·2% non-douched cases were ill, and 3% were unwell only. The non-douched cases showed a tendency to the less virulent late rise of temperature. The average duration of the rise was equal in both groups, *i.e.*, 3 days; and the average height in both cases 39·4°C. Thus the statistics show that preliminary douching increases the tendency to puerperal fever. Bacteriological investigations of the lochia further demonstrated the inability of Sol. Hyd. Perchlor. to destroy the specific germs causing puerperal fever (streptococci).

Judging from the examination of the vaginal secretion before and after douching, the author agrees with Bumm that douching may cause an alteration of character from the innocent vaginal bacilli to cocci. Pre- and post-partum examination of non-douched patients showed no alteration in the character of the vaginal germs. After deducting rises of temperature due to retention of membranes and those due to gonorrhœal endometritis, and also eliminating 21 cases in which no germs could be found in the lochia and no cause in the general system, there remained 38 cases in which the rise of temperature was found to be due to streptococci or staphylococci. Among these the rise occurred 19 times within the first 6 days, and 19 times after this time. These dates point to the possibility of a

bacteriological invasion having occurred after labour which further reduces bacterial auto-infection to 19 cases. Five of these cases were undouched, 14 were douched.

The results of these careful statistics have induced Döderlein to give up preliminary douching in his hospital, and the author is now conducting a new series of investigations in which Zweifel's treatment is being adopted. This treatment aims at endeavouring to rob the pathogenic germs of their food and prevent them ascending by removing blood from the vagina shortly after labour. The results of these experiments will be published in due course.

H. T. Hicks.

GYNÆCOLOGY.

Ovariotomy during Pregnancy.

Graefe (M.). *Zeits. für Geburts. und Gynäkol.* Bd. lvi., Ht. 3.

Fresh interest was given to the subject of ovariotomy during pregnancy by Ludwig Fraenkel's paper on the function of the corpus luteum, published in the *Archiv für Gynäkologie* in 1903. He considered that the corpus luteum was of great importance to the embedding and development of the impregnated ovum, and that removal of an ovary containing a corpus luteum was likely to bring an early pregnancy to an untimely end. As regards ovariotomy during pregnancy he advised that the operation should be put off if possible until after the fourth month, and that a resection should be performed, leaving the corpus luteum. When the ovaries had to be removed during pregnancy "lutein" should be administered.

Fraenkel's views and hypotheses have not received much support.

Graefe has collected 126 cases of ovariotomy during pregnancy, since 1892, and added to these 66 cases collected by Heil. Out of these 194 cases only 3 patients died, 2 of them from conditions which had nothing to do with the operation. He gives a brief account of a large number of recently published cases, of which we may notice a few of special interest.

Guicciardi operated on 5 patients in the third or fourth months of pregnancy. In every case the pedicle of the tumour was twisted, and there was hæmorrhagic infiltration of the tumour. In every case the pregnancy went to full term.

Wertheim operated on 5 patients by anterior colpotomy. In only one did abortion occur.

Graefe performed a double ovariotomy during the second month of pregnancy. The patient went to full term.

Mainzer found among 17 cases of double ovariotomy performed during the first 4 months that the pregnancy was undisturbed in 12 patients, abortion occurred in 3, and premature labour in 2.

Orgler reported 6 cases of double ovariotomy during the third month, and 5 cases during the fourth month. One patient in the first series aborted, the other 10 patients went to term.

Heil reported 7 cases of double ovariotomy in the third month, and Essen-Moeller reported 1 case during the second month, with no disturbance to pregnancy.

Out of 23 cases of double ovariotomy during the first 4 months abortion occurred only 4 times, *i.e.*, in 17 per cent. Statistics show that after unilateral ovariotomy abortion occurs in 16·7 per cent.

In 215 cases of ovariotomy during pregnancy, performed since 1892, the mortality is only 0·47 per cent.

As regards technique Heil advises that the Fallopian tube should be left, if possible, so as to diminish the amount of disturbance to the uterus. Posterior colpotomy is a good method during the first three months, but at a later period the pedicle cannot be tied from below without considerable risk of bruising the uterus. Anterior colpotomy, on the other hand, cannot be recommended during pregnancy, as by this method the uterus must be disturbed both in the separation of the bladder, and in the application of the vaginal sutures.

HENRY RUSSELL ANDREWS.

Malignant and Benign Degenerations of Uterine Fibroids.

WINTER (GEORG). *Zeits. für Geburts. und Gynäkol.*, 1906. Bd. lvii., Ht. 1.

THIS valuable paper of fifty-nine pages is divided into the following parts:—Fibroids and carcinoma, fibroids and sarcoma, total necrosis of fibroids, total necrosis of interstitial fibroids, and primary cystic softening (myxomatous degeneration).

1. *Fibroids and carcinoma.* Winter attempts to solve the question as to whether the presence of fibroids and carcinoma in the same uterus is an accidental occurrence or due to the fact that the two forms of new growth have some close connection with one another.

Among 2,331 cases of carcinoma of the uterus, apart from fibroids, he finds 151 of carcinoma of the body, *i.e.*, 1 to 15 of carcinoma of the cervix. Among 131 cases of carcinoma with fibroids there were 80 of carcinoma of the body of the uterus, *i.e.*, 1 to 1·6 cases of carcinoma of the cervix. (A few pages later, however, Winter talks of the "much more common combination of carcinoma of the cervix with fibroids"). The explanation of the greatly increased proportion of cases of carcinoma of the body in association with fibroids is probably to be found in the hyperplasia of the endometrium brought about by the presence of the fibroid tumours. Gradual changes from an innocent to a malignant proliferation are well-known to occur in the endometrium of uteri which are free from fibroids.

Among 1607 cases of fibroids were 20 of carcinoma of the body, *i.e.*, 1·20 per cent. Winter has had 12 such cases under his own care. In 4 of these the presence of carcinoma was not suspected before the operation. In 4 others carcinoma was found unexpectedly on examination of the fragments removed by the curette.

As regards *diagnosis* of carcinoma of the body with fibroids, the most important symptom is bleeding after the menopause, the fibroids themselves being responsible for only about one-third of the cases in which this symptom occurs. Another very important sign is pain of a kind not usually produced by fibroids. In 4 out of his 12 cases there was typical "Simpson's" pain. The occurrence of blood-stained or fœtid discharge is also of importance.

Fibroids with carcinoma of the cervix. This combination is so common in the practice of every gynæcologist, that comparatively few cases are reported, and nothing like complete statistics can be produced. Among 1270 cases of fibroids were 25 of carcinoma of the cervix, *i.e.*, 2 per cent. As there is not the slightest doubt that even in countries where carcinoma is most prevalent, the frequency of occurrence of carcinoma of the cervix is not nearly so great as 2 per cent., there must be some connection between fibroids and this condition.

Winter has collected 29 recorded cases of carcinoma of the stump left after supra-vaginal amputation of the uterus, besides "several" mentioned by Norris. Of these he considers that the cervix was certainly free from carcinoma at the time of the operation in 7. The mistake of overlooking carcinoma of the cervix of a fibroid uterus is not a very rare one. The author draws up the following conclusions as regards "stump carcinoma."

(i.) In the majority of cases the carcinoma was present before the operation.

(ii.) Carcinoma coming on later has no connection with the operation.

(iii.) Supra-vaginal amputation of the uterus need not be given up in favour of total extirpation on account of fear of "stump carcinoma."

2. *Fibroids and sarcoma.* Probably sarcomatous change may occur both in the inter-muscular connective tissue and in the muscle cells themselves. Winter attempts to answer the questions—

(i.) How often does sarcomatous change occur, and in what variety of fibroids is it most common?

(ii.) How can sarcomatous degeneration be diagnosed?

He has changed his views about the frequency of sarcomatous degeneration since he has adopted the plan of examining sections from all parts of all the fibroids he removes. Among 500 cases in which he examined only "suspicious" parts, he found sarcoma 16 times, *i.e.*, 3·2 per cent. Among 253 cases in which a more thorough examination was made he found sarcoma 11 times, *i.e.*, 4·3 per cent. He concludes that in about 4 per cent. of all cases of fibroids there is sarcomatous degeneration. The change is least common in subperitoneal, and most common in submucous fibroids. Nearly 9 per cent. of all submucous fibroids undergo sarcomatous degeneration.

Among his own 27 cases sarcoma was diagnosed clinically only once. An irregular, multilobular shape in a submucous fibroid ought to excite suspicion more than a change in the consistence. Microscopical examination of the stalk is very important. The diagnosis of sarcomatous change in interstitial fibroids may be impossible before operation. Rapid wasting, severe pain between the menstrual periods, and rapid increase in the size of the tumour after the menopause, are the most important signs. Removal of a fibroid should not be based on the fear that it may become sarcomatous.

3. *Benign degenerations.* These are due to

(*a*) Atrophic conditions.

(*b*) Infective processes.

(*c*) Acute nutritional disturbances—necrosis, or

(*d*) Degeneration of inter-muscular connective-tissue.

Total necrosis is easily explained in cases of submucous tumours which develop a pedicle, or become nipped by the external os or by the vulva. Pedunculated subperitoneal tumours may suffer from twisting of their pedicle in the same way as do ovarian tumours.

Total necrosis of interstitial tumours is well worth further investigation. From a study of 17 cases of his own, and of recorded cases of total necrosis of interstitial fibroids, Winter compares it to

the process of maceration of dead fœtuses retained *in utero*. The process begins in the centre where the tissues may be found to be discoloured, while the peripheral parts are still more or less well-nourished. In 9 out of his 17 cases labour or abortion seemed to play some part in the ætiology. It is a striking fact that in 6 out of these 9 cases the placenta had to be removed manually. Winter compares these cases to those in which necrosis follows mechanical damage due to curetting.

In one of his cases there was evidence of disturbance of nutrition by torsion of the uterus. In another case there was thickening of the media and intima of the arteries. In a third case there was endarteritis obliterans of very marked degree. Artificial narrowing of the arteries due to administration of ergot is an occasional cause.

The symptoms caused by total necrosis. In 50 per cent. of his cases there was metrorrhagia, and in the same number there was what Winter looks on as characteristic pain, *i.e.*, spasmodic pain of a tearing, stabbing character in the tumour or its neighbourhood. There was evidence of auto-intoxication in some of his cases, but he did not find the acetonuria described by Freund.

The clinical picture in a case of total necrosis is that the patient after labour or abortion suffers from irregular, sometimes severe, hæmorrhages, associated with pains like those of labour, and later shows signs of auto-intoxication.

Winter does not think that pan-hysterectomy is specially indicated as long as the tumour is still completely encapsuled.

Primary cystic softening (myxomatous degeneration). This occurs most commonly in poorly-nourished fibroids, *e.g.*, sub-peritoneal tumours with thin pedicles, and intra-ligamentary tumours. The age of the patient, and probably also the age of the tumour are factors tending to produce this form of degeneration. The process begins either in the muscle-cells or in the inter-muscular connective-tissue. In some cases the fluid is lymph, in others mucin. Œdema of fibroids, which to the naked-eye resembles this condition, probably depends on the fact that the venous return is impeded.

Symptoms. Severe bleeding is the most important symptom, possibly accounted for by the abnormal size and fulness of the veins. There is pain felt in the tumour, usually a sense of pressure, or feeling of tension. Disturbance of the general health does not occur, a fact that distinguishes cases of cystic degeneration from those of total necrosis.

The diagnosis is made from the feel of the tumour, which may be doughy, or may resemble that of the pregnant uterus. There is some-

times pseudo-fluctuation. A tumour may be almost completely destroyed by cystic degeneration without great increase in size.

The indications for operation on a fibroid are not altered by the occurrence of cystic degeneration, *i.e.*, the mere fact that cystic degeneration has taken place does not make hysterectomy necessary, but it is commonly accompanied by symptoms which must be looked on as indicating operation.

HENRY RUSSELL ANDREWS.

Immediate and Remote Results of Modern Operations for Myoma.

SARWEY (O.). *Arch. für Gynäk.* Bd. 79, Ht. 2, p. 277.

IN an exhaustive paper Sarwey gives the results of 430 operations for myoma of the uterus performed at Döderlein's hospital in Tübingen.

The mortality was 4—5 per cent., the mortality from the vaginal method being 2 per cent. higher than from the ventral method. The conservative operation showed a death rate 1 per cent. higher than radical operations. Myomata show a great tendency to complications which may be the result either of the anatomical relations of the tumour or may arise without any apparent cause in the neighbourhood of the tumour, especially in the adnexa. These complications often aggravate the dangers and necessitate a second operation. Until lately the innocent character of fibromyomata was almost universally believed in, especially when occurring at the climacterium, but it is now known that arrest and shrivelling of the growth are by no means as common as has been assumed hitherto. At the period of the menopause there is danger of innocent and malignant degenerative processes. The late results of the radical operation, including the removal of both ovaries, are excellent.

The conservative method has disadvantages which are absent in the radical operation: the possibility of a recurrence of the tumour, necessitating another operation, the danger of rupture of the uterus after enucleaton (one of the author's patients became pregnant after enucleation and her uterus ruptured through the old scar during the third stage, the placenta escaping into the abdominal cavity). Compared to these dangers the disadvantages accompanying radical operation, *e.g.*, artificial menopause, etc., are very slight, and the impossibility of further child-bearing is welcomed by many of the poorer patients.

Thus in order to give the patient the best chance of soon regaining her health and full powers of work the radical method of operation should be adopted as the operation of choice, and the conservative method only resorted to in those rare cases where the youth of the patient or her express wish make a preservation of menstruation and the capability of child-bearing desirable. The author concludes that the excellent results attending modern methods of operation for myoma, and the dangers to which patients suffering from this tumour are daily exposed make early radical operation imperative, and he urges that as little time as possible should be lost in symptomatic treatment.

H. T. Hicks.

Death of Fibromyomata of the Uterus.

Rouville and Martin. *Archives Générales de Médecine*, August, 1906. Nos. 32 and 33.

The causes of death of uterine fibroids (necrobiosis) are considered to be either, torsion of pedicle with interference of blood supply, or, sepsis. Subserous fibroids, as might be expected from their position, would be most liable to death from torsion, but this does not occur so frequently as in the submucous variety. The degree of torsion in the former varies according to different writers from $\frac{3}{4}$ of a turn to $2\frac{1}{2}$ turns, and almost always from left to right, in the direction of the hands of a clock. The uterus often participates in the torsion forming a large tumour with an elongated pedicle. On rare occasions spontaneous separation of the uterine body from the cervix occurs, of which at least two cases have been recorded, but not infrequently the fibroid itself may become detached. The gangrene (necrobiosis) which occurs is an aseptic one, as opposed to that affecting the submucous varieties. Interstitial tumours are less affected than the other varieties, but not infrequently are exposed to a septic gangrene. The results of observations by many observers seem to show that the gangrene does not result from microbic infection entirely, and also that where there is infection, it does not necessarily come from the uterine cavity, as cases are recorded in which in one and the same uterus an interstitial fibroid was affected, while a submucous one escaped, pointing to an infection from an outside source, possibly the rectum or bladder.

In considering the etiology, two varieties, spontaneous and in-

duced, must be distinguished. In the first, the causation is obscure, while in the second, the author believes that ergot and electrolysis play an important part. Pregnancy also markedly predisposes to gangrene of fibromyomata.

E. Scott Carmichael.

Absorption of a Tumour in the Broad Ligament during Pregnancy.

McArthur (Norman). *Intercolonial Medical Journal of Australasia*, July 20, 1906.

A woman, aged 30, came under McArthur's care in the middle of September, 1905, when in the fourth month of pregnancy. For a fortnight previously she had suffered from symptoms of acute pelvic inflammation, including rigors. Constipation was marked, the bowels acting only by enemata. She had been married nine years and borne three children; the youngest was three years old, and the mother had never felt in good health since its birth.

A large rounded, fairly firm, elastic swelling occupied the left broad ligament, encroaching on Douglas's pouch. The cervix was displaced upwards, forwards and to the right, and the os was patulous. Abscess in the broad ligament was suspected; a deep puncture into the swelling was made through the left fornix. A Doyen's clamp forceps was thrust into the puncture, its blades separated and then withdrawn. No pus, however, escaped, nor was there any cavity in the swelling; the finger, passed into the forceps-wound could define nothing but uniformly firm tissue like that of a fibro-myoma.

After this exploration the inflammatory symptoms increased and the patient became exhausted by vomiting. Hyperemesis had been present throughout the whole course of all her previous pregnancies. McArthur thought that the fibroid should be enucleated at once if possible. He opened the abdomen three weeks after the exploratory incision had been made. He discovered between the layers of the left broad ligament a tumour, round, firm, elastic and as large as the head of a seven months' fœtus. It was intimately incorporated with the cervix and lower segment of the uterus, so that no pedicle or isthmus could be defined. McArthur decided that the patient should be left alone till term and then undergo Cæsarean section. The abdominal incision was closed, the wound healing badly. Three weeks after the operation the tumour was found to be as large as when it had been exposed. The patient had regained her health,

but was kept in hospital for close observation. Three weeks before labour was due the pelvis was explored. No tumour could be felt, the cervix lay centrally in normal position, the os was patulous, admitting three fingers, and the fœtal head could be felt presenting. McArthur suspected that the tumour had been drawn up above the true pelvis and was placed so as to be undefinable during pregnancy. On March 1st, 1906, free hæmorrhage occurred about term. After dilatation a healthy living child, weighing seven pounds, was delivered by forceps. When labour was over the tumour was searched for and not a trace of it could be defined. After the puerperium the uterus could be most easily distinguished by palpation, and all that remained as evidence of the past trouble was a small dimple, the scar of the wound in the left fornix.

[The reporter of the above abstract has discussed the question in a critical review entitled "The Disappearance or 'Absorption' of Fibroids before the Menopause," published in the JOURNAL for August, 1904. Murdoch Cameron's objections to the absorption theory, based on clinical experience, are noted in that review, and must be borne in mind. Objectors to "absorption" who are ready to grant that the swelling in any one instance was a uterine fibroid will not fail to note that severe traumatism was a feature in McArthur's case, as in the reporter's where the tumour received a blow. In a discussion which followed the reading of McArthur's case before the Medical Society of Victoria, the question of inflammatory exudation was raised, whilst, in support of the author, Dr. Horne, of Melbourne, reported the disappearance of an œdematous myoma during pregnancy, in a woman aged 28. McArthur denied the exudation theory, and noted that at the abdominal exploratory operation the tubes and ovaries were seen to be perfectly normal.]

ALBAN DORAN.

Sclerotic Changes in the Blood Vessels of the Uterus in Nulliparæ and Multiparæ and Climacteric Hæmorrhages.

WITTEK. *Monats. für Geburts. und Gynäkol.* Bd. xxiii., Ht. 6.

SEVERE bleeding from the uterus which may be fatal, and which is not caused by carcinoma or metritis is well known to us, but its pathology and etiology are still not well recognised. Most operators are familiar with the cases in which curettage does no good and in which ergot if anything does harm by increasing the hæmorrhage. Twelve such cases were treated in Asch's clinic by total extirpation

of the uterus during seven years, and the organs removed and carefully examined by the author. Of these 8 had to be discarded because they showed ovarian changes, intra-mural myomata, gonorrhœal or other infections of the endometrium or extra-uterine tissues, or heart or lung affections. The remaining four cases, after careful examination, may be agreed upon as representing the class of case above mentioned, and show only changes in the blood vessels as a cause of the severe bleeding complained of. Of these cases one occurred in a nullipara of 51, and three in multiparæ with five, fourteen and eleven parturitions respectively. In all, the symptom complained of was severe bleeding uncontrollable by ordinary means and apparently made worse by ergot. In all these uteri there were no signs of endometritis, in fact, the endometrium in two was described as atrophic and much reduced. The muscle coats showed no particular change, and, in fact, the only obvious pathological condition was in the blood vessels. These changes consisted for the most part of proliferation of the tunica media with hyaline degeneration; sometimes irregular proliferation of the intima with polypoid projections into the lumen of the vessel, and therefore a definite contraction of the lumen. As a secondary result of these changes the connective tissues around some of the vessels appeared to be increased and undergoing hyaline degeneration with corresponding atrophy of muscle fibres, and in the two last cases with 14 and 11 children there was also unusual increase of the elastic fibres in the walls of these degenerate vessels. It is clear from this account, especially of the secondary changes, that these arterio-sclerotic vessels would not be able to accommodate themselves to changes in blood pressure, and would therefore be liable to give way under any increased pressure. The elastic fibre increase observed in two of the cases the author looks upon as compensatory, and would no doubt be able, for a time at least, to assist the vessels to accommodate themselves to variations in blood pressure. This, however, would only be of a temporary nature and failure in function must eventually occur. The etiology of this primary arterio-sclerosis of uterine vessels (for these people showed no marked arterio-sclerosis elsewhere) is, of course, obscure. The author is inclined to consider frequent vaso-motor disturbances as of some importance in the case of the nullipara (who had been subject to convulsions in childhood and adult life) and frequent child-bearing as the prominent factor in the cases of the multiparæ.

THOS. G. STEVENS.

On Heterologous Mesoblastic new Growths of the Female Genital Organs.

KEHRER. *Monats. für Geburts. und Gynäkol.*, 1906. Bd. xxiii., Ht. 5 and 6.

THIS extremely important paper, which occupies 70 pages of the *Monatsschrift* for May and June, 1906, deals chiefly with a description of the known cases of "grape-like sarcoma" of the uterus and vagina and certain other mesoblastic tumours found in the female genital organs. The published cases are fully reviewed and an important case of the author's described at length. Primarily, Kehrer makes it clear that simple grape-like sarcomata must be very clearly distinguished from those tumours which, similar in appearance, are in reality different in that they contain heterologous tissues, such as cartilage, bone, striated muscle, etc. Of 32 cases described and published 10 had these curious heterologous tissue inclusions, and stood out very clearly as totally different tumours. The age incidence of them is remarkable, in that they grow from the vagina of infants and from the cervix of adults. In the tumours thus included some had not the true grape-like character, and the author shows that this appearance is only due to the peculiar method of growth in an extensible cavity, the vagina.

Histologically, the essential point in these growths is the presence, generally near the base, of a round-celled mass, termed embryonic. This mass, embryonic because undifferentiated, Kehrer proves conclusively gives rise to the other tissues, cartilage, bone, striated muscle, myxomatous tissue, etc. His diagrams as to the manner of formation of cartilage are peculiarly instructive and appear convincing. This round-celled mass may and does also give rise to what appears to be sarcomatous tissue, and often in this form comprises a very large part of the tumour. In some cases the primary tumour appears to consist entirely of a round-celled sarcoma, and it is only in the recurrent growths or in the spread of the primary growth that the heterologous tissues appear. Regarded from the latter point of view it is fairly clear that these tumours are not really sarcomatous, any more than an ovarian embryoma is a sarcoma. Comparing these tumours with the cartilaginous bony and fatty masses found in fibro-myomatous uteri, Kehrer points out that they possess no points in common. The fact that these heterologous tissues occur chiefly at the climacterium when degeneration changes are apt to occur, leads to the belief that these are really the result

of metaplasia of fibrous tissue. Discussing this point, Kehrer denies that the heterologous tissues of "grape-like sarcomata" arise by metaplasia, although some authors have attempted to show that this is so. He points out the importance of the round-celled masses and their universal presence in these tumours and attempts to show that striated muscle, for instance, cannot arise by metaplasia from smooth muscle, as they are derived from different segments of the primitive mesoblast. Clinically, these tumours behave like carcinomata, spreading by the lymphatics and producing metastases, which may appear as round-celled growths or may contain heterologous tissues like the primary tumour. In the respect of infiltration powers, the adult tumour from the cervix shows its malignant tendencies later and in less degree than the vaginal growth of infants. In discussing the origin of these tumours, to which he gives the name "mixed tumours" of the vagina and cervix, Kehrer contrasts Cohnheim's and Wilms' views, showing that the latter affords the only true explanation of their presence. The presence of undifferentiated round cells from which the heterologous tissues are developed affords the key to the situation, and puts out of court Cohnheim's theories in this instance. Finally, Kehrer sums up the important points of the paper thus:—

1. The so-called "grape-like sarcomata" of the vagina and cervix may contain heterologous tissues, striated muscle, fat, embryonic myxomatous tissue, cartilage and bone.

2. Histologically, similar tumours have been described in the body of the uterus, in the kidney region, the bladder and the vas deferens, forming a group which must be known as "mesoblastic mixed tumours."

3. Vaginal mixed tumours occur in infant life, while those of the cervix and uterine body occur in adults.

4. Those of the cervix and vagina commonly show a hydatidiform mole-like form, but not always.

5. This peculiar form is due to their growth in a distensible cavity, to an increased superficial growth while the central parts remain latent, and perhaps to some disturbance of the circulation in them.

6. The primary tumour may consist only of an embryonic round-celled growth, whilst the recurrences contain the heterologous tissues.

7. The round-celled tissue (especially in Kehrer's case) gives rise to the heterologous tissues.

8. These tumours behave like carcinomata and spread by the lymphatics in a similar manner.

9. Careful observation of the patient and complete removal of the affected organs is necessary in these cases.

10. The origin of these tumours is to be looked for in an undifferentiated mass of mesoblastic tissue (Wilms), and not in the inclusion of preformed tissues (Cohnheim).

11. These undifferentiated masses are largely connected according to Wilms with the development of the Wolffian body.

THOS. G. STEVENS.

The Treatment of Dysmenorrhœa.

JACOBY. *Therapie der Gegenwart*, June, 1906.

A DISTINCTION should always be made between dysmenorrhœa as a symptom and dysmenorrhœa as an idiopathic disease. When a distinct pathological lesion is present, such as dislocation of the uterus, inflammatory processes in its neighbourhood, polypi or fibroids, then treatment is naturally directed to it; where the sexual organs are ill-developed the use of tonics combined with the Thure-Brandt system of massage may accomplish much. In the common form of idiopathic dysmenorrhœa—which Theilhaber has ascribed to a pathological irritability of the uterine nerves,—internal treatment by anodyne remedies is indicated. Of these the combination of potassium bromide with valerian and the extr. viburn. prunifol. has been the most popular, though its efficacy is doubtful. The writer of this paper calls attention to the success he has had in the treatment of idiopathic dysmenorrhœa by styptol, the phthalate of cotarnine, given in relatively large doses. Mohr's experiments on the pregnant uterus of a rabbit seem to show that styptol produces a distinct lowering of the irritability of the uterine nerves, so that its action in menstrual colic may be compared to that of opium in intestinal colic. Owing to its double sedative and hæmostatic properties, it is especially indicated in painful and prolonged menstruation, but rather larger doses are required than when given for hæmorrhage alone, as its sedative action is chiefly due to the cotarnine, while both cotarnine and phthalic acid participate in the hæmostatic action. Doses of at least 0·1 gramme should be given three times a day, and in severe cases of dysmenorrhœa, no untoward symptoms will appear if the dose is increased to 0·15 gramme four or five times a day, and in any case it is well to begin the administration several days before the onset of the period. Short notes of cases are given and references to recent German literature on the subject.

J. S. FAIRBAIRN.

A Case of Rudimentary Uterus, Impervious Vagina, and Accessory Anus in the Vestibule.

VON BUCURA. *Wiener klin. Wochenschrift*, 1906. No. 32.

THE author records the case of a married woman, æt. 24, who had never menstruated. The clitoris and urethra were normal. The para-urethral ducts representing the urogenital sinus (Nagel) were 1½ cm. in length and passed backwards. The right duct ended blindly, but the left passed directly into the rectum. The vulvar orifice ended in a solid vagina but communicated posteriorly with the rectum by an opening admitting the point of the forefinger. The perineum between the normal anus and the vulvar orifice was 3 cm. thick, and formed a bridge over this communication. Bimanually, with a finger in rectum, distinct thickening between the rectum and urethra was felt, as if the vagina were solid. The uterus was infantile, and the ovaries large and apparently cystic. The recto-vulvar fistula, Bucura considers possibly to have been traumatic, after marriage, and refers to other recorded cases, but on the whole is inclined to consider it of congenital origin, especially as literature records several cases with a similar condition which was undoubtedly present from birth.

E. SCOTT CARMICHAEL.

REVIEWS OF RECENT BOOKS.

A MANUAL OF MIDWIFERY. By T. W. Eden. With 26 plates and 233 illustrations. Pp. 518. London: J. and A. Churchill, 1906. Price 10s. 6d. net.

This work, by a former editor of this JOURNAL, has been awaited with an interest which has not been disappointed. It is bound to become a standard text-book and it can be confidently recommended as fulfilling its purpose, namely, that of being a manual for students and junior practitioners. In his preface, Dr. Eden says that this volume is not intended to compete with the large and exhaustive treatises which have appeared during the last ten years, "but to deal with every question briefly, and so far as possible, from a practical standpoint." Such a statement forestalls criticism, as the amount of space devoted to any part of the subject must be largely a matter of personal bias. The teaching follows the sound lines of British obstetric practice; the descriptions are concise and clear; the treatment is that approved by experience; the book is well got up in print and illustrations; and if attention is here drawn to some deficiencies in details it is in the hope that future editions will be still more complete.

A recent Irish text-book refers to palpation of the abdomen as being taught in all obstetric schools, but English works have not assigned to it the importance due to it as a means of diagnosis without risk of sepsis. Dr. Eden's description of the manipulations is not sufficiently systematic to lead a practitioner to obtain all the information available. The statement on page 211 that in a vertex presentation the occiput is more palpable than the forehead is misleading; when the occiput is more prominent, as Dr. Eden himself points out on page 230, a face case should be suspected. Every day experience confirms Pinard's teaching of thirty years ago. A considerable part of the essential information in MacLennan's Abdominal Manipulations might be made available in manuals such as this, without any great increase of bulk, to the great saving of life in childbed. Abdominal palpation, as much as vaginal touch, requires training and experience.

Similarly in the description of hydrocephalus the author writes that "the diagnosis presents little difficulty, for the size of the head attracts immediate attention whether it lies at the fundus or presents at the brim; the width of the sutures and fontanelles, when they can be felt, is pathognomonic." Unfortunately the condition often remains undiagnosed for a considerable time and not a few cases terminate fatally for the mother. The diagnosis between obstruction from too large a head or from too small a pelvis is not always easy. Of the hydrocephalic cases admitted into hospital, few are diagnosed before admission. About twenty years ago the present reviewer demonstrated by abdominal palpation the presence of hydrocephalus likely to obstruct labour; when the woman was delivered some weeks later a practitioner who had been present at the "demonstration" expressed surprise that the prognosis had proved

correct; the size of the head had not "attracted his attention." Nor is the wide suture in many cases the obvious feature on vaginal examination; the description of a "bag of bones" is more commonly the correct one; as the forceps fails to grasp the head and slips, the case is often diagnosed as one of dead fœtus with softened head. If the case is one of extreme hydrocephalus mere evacuation of the fluid sometimes fails to effect delivery; the base of the skull is so spread out as to require crushing.

The paragraph on paralysis of the arm from injury during birth is so compressed as to be misleading and nothing is said about treatment. The statement that "the injury probably results from stretching or direct compression of these [5th and 6th cervical] nerve roots" is probably a clerical error for nerve trunks. The localization of the seat of injury was diagnosed by Duchenne, though he had no opportunity—so far as one can judge from his writings—of verifying his opinion pathologically. This has, however, been done frequently of late years, and in a paper read at the Oxford meeting of the British Medical Association, before the obstetric section, Kennedy showed that in the cases treated by himself the lesion was near the junction of the 5th and 6th cervical trunks. The nerve fibres were stretched, crushed or torn by injury, or were nipped in the resulting cicatrices; and the operation consisted in freeing the nerves from these adhesions or in suturing the torn nerves. The most probable cause of the laceration of the nerves is depression of the shoulder with simultaneous dragging of the head to the opposite side—movements likely to be produced by the manipulations practised in freeing the aftercoming head, or the shoulders in vertex cases. It is important to remember that operation affords good prospect of restoration of the power of voluntary movement and that it should not be too long delayed. Kennedy pointed out that if electrical tests showed the reaction of degeneration and there was no improvement after about six weeks of treatment, the case was not likely to recover spontaneously and operation was advisable. The sooner after the injury the operation was performed the sooner improvement began; though in one case great improvement had occurred at the date of the communication, in spite of the operation having been delayed till 14 years after the injury.

TRANSACTIONS OF THE ROYAL ACADEMY OF MEDICINE IN IRELAND. Vol. XXIV. Edited by James Craig, M.D., F.R.C.P.I. Dublin: John Falconer, 1906.

In this volume which contains reports of the principal papers read before the various sections of the Royal Academy of Medicine in Ireland, there are six papers in the section of obstetrics. Of these, three have already appeared in the pages of this JOURNAL. The others are: 'Some remarks on uterine suspension and shortening of round ligaments,' by Dr. J. S. Ashe; 'Sequel to an attack of eclampsia,' by Dr. J. Spencer Sheill, in which is described a recurrent attack of eclampsia in the second pregnancy of a patient with one kidney; and 'A case of hernia of the gravid uterus,' by Dr. Arthur Holmes, in which, although the uterus lay in a large hernial protrusion through the scar of an old abdominal incision, natural delivery of the child took place without the slightest difficulty, but was followed by post partum hæmorrhage necessitating manual removal of the placenta, a very difficult operation owing to the unusual position of the uterus. There are, however,

several papers of obstetric and gynæcological interest to be found in other sections. For instance, in the section of surgery there are two papers on "Sterilization of the hands," in which the respective authors come to exactly opposite conclusions; in one, Haughton and Rowlette consider that rubber gloves form the only secure method of ensuring sterility of the hands in surgical operations, while Stoney, in the other, considers the wearing of gloves in an aseptic operation to be unnecessary, though advisable in the case of those whose skin is difficult to sterilize or is easily injured by the constant use of antiseptics. The section of pathology contains several papers on abdominal tuberculosis, including one by Sir William Smyly on "Tuberculosis of the female genital organs," giving a short review of the subject, but not containing anything new.

THE PRACTITIONER'S LIBRARY: THE PRACTICE OF GYNECOLOGY IN ORIGINAL CONTRIBUTIONS BY EMINENT AUTHORS. Edited by J. Wesley Bovée, M.D., Professor of Gynecology, George Washington University, Washington. Illustrated with 382 engravings and 60 full-page plates. Pp. 836. London: H. Kimpton. Price 31s. 6d. net.

Here is another big book on gynæcology from America: "One of three companion volumes," says the preface, "dealing respectively with gynecology, obstetrics and pediatrics, and jointly covering this whole cognate domain in the light of the world's latest and best knowledge." Seven members of the medical profession have taken part in its production. The editor, Dr. Bovée, contributes about 100 pages on diseases of the urinary organs in women. In this country his name is already well known in connection with this subject, and we are glad to have these chapters from his pen. He also writes on sterility and on diseases of the rectum and anus, and gives a good and well-illustrated account of the development anomalies of the female genital organs. He does not tell us much about the treatment of hæmatocolpos from retained menses, and he forgets to discuss that of hæmatosalpinx when secondary to the same condition. Dr. G. H. Noble, of Atalanta, contributes four chapters dealing very graphically and thoroughly with plastic operations, including those for all varieties of fæcal and urinary fistulæ, perineal lacerations, rectocele, cystocele and so on. He is particularly clear as to the necessity of uniting the deeper structures in perineorrhaphy. We wish that operators of his experience would also give a careful estimate of the permanent value of the methods described. For instance, we are told of several ways of treating cystocele, but what we most want to know is what percentage of cases operated on will be found cured three or four years later, and which operation gives the best results, for we know that many relapses follow plastic operations on the pelvic floor. Dr. Riddle Goffe writes a very sensible paper on the management of menstrual anomalies by hygienic and operative measures, but here again no reference is made to the results of operative treatment, and there is no attempt to specify what cases are likely to benefit thereby. The reader is left to find out for himself that the operative treatment here described will leave a considerable proportion of cases of dysmenorrhœa no better than before. We notice also that anteflexion is taken as a constant cause of dysmenorrhœa, with no suggestion that this point has ever been called in question. He also deals with uterine displacements. He is strongly in favour of operative treatment in almost all cases of chronic retroflexion,

and he considers that the best operation is shortening of the utero-sacral ligaments, which can be done by the vaginal, but is best done by the abdominal, route. Dr. Goffe also writes in praise of the vaginal route in operating on the pelvic organs and gives some good illustrations of the methods employed. The chapter on the after-treatment and complications of abdominal section is by the same author. Dr. G. Brown Miller is responsible for seven chapters dealing respectively with inflammation and new growths of the uterus, laceration of the cervix and inversion of the uterus; and he gives a good and concise account of these subjects, in which the bacteriological factor is duly considered. He writes wisely about the abuse of curettage. but we do not agree with him that all instruments recommended for the reduction of chronic inversion are both useless and dangerous, and that the best method is at once to proceed to operate by some modification of Küstner's operation. On the contrary, Aveling's instrument or some modification thereof is a safe and very successful appliance. Nothing in the book is better than the three chapters on Infections of the Tubes and Ovaries, by Dr. T. J. Watkins, of Chicago. His account of these subjects is really first rate, is beautifully illustrated, and is especially good as to treatment.

Dr. Werder's account of ectopic gestation is not very complete. For instance, he makes no mention of the fact that in tubal pregnancy the ovum has been found to lie, not in the lumen of the tube, but embedded in the muscular layer beneath the mucosa, and he says nothing about cornual pregnancy. He also discusses the technique of abdominal operations in an interesting manner. He rightly condemns the use of iron and most styptics in stopping oozing, but has he never used adrenalin? Dr. Werder also writes the opening chapter on diagnosis. We respect him for his plain speaking on the subject of the abuse of gynæcological examination in unmarried women.

There are several subjects which we cannot find mentioned in this book. There is nothing about inter-menstrual pain, or kraurosis vulvæ, nor any mention of rodent ulcer or esthiomène of the vulva. There is almost nothing about the effects of removing the ovaries and the phenomena of the artificial menopause. There is almost nothing about pelvic cellulitis or broad ligament phlegmon, and other omissions will be noticed. It is to the surgical rather than the medical aspects of gynæcology that most attention is devoted, and there is throughout the book a strong bias towards the adoption of the method of the knife, as opposed to treatment by slower and milder means. On the other hand, several subjects are included which are not usually found in gynæcological works, and we regard this as a useful work of reference, abounding in practical suggestions by ingenious and able men.

As we have heard a good deal lately of Trans-Atlantic spelling reform, we cannot help expressing a wish that the editor had seen his way to make use of the much neglected *hyphen* to prevent the occurrence of such unsightly pseudo-diphthongs as are found throughout the book in such words as *anteuterine*, *retrouterine*, *intrauterine*, *tubouterine*, *sacrouterine*, etc. The climax is reached on page 732 in the appalling word: *Lumboilioinguinal*. To the dropping of the diphthong in *hemorrhage* we are accustomed in American books, but why write: *hemorrhage*, *hæmatoma* and *hæmatocele* all in the same sentence? Finally, on page 137, we find the word *trauma* making its plural *traumæ*. In this there is "little Latin and less Greek," and we respectfully draw thereto the attention of the "eminent author" concerned.